

An Examination of the Relationship Between the Presence of Critical Session Elements and  
Treatment Outcome in Cognitive Processing Therapy for PTSD

By

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## **Abstract**

Cognitive Processing Therapy (CPT) is designated an evidence-based treatment, and is well supported in both the efficacy and effectiveness literature. However, while adherence to the CPT protocol is tracked during the training process, and encouraged thereafter, no literature could be found to date linking overall adherence to the protocol or specific session elements to treatment outcomes. This study sought to examine the relationship between therapist adherence to the CPT protocol and treatment outcome as measured by posttraumatic stress disorder (PTSD) and depression symptoms. The present study utilized an explanatory correlational design and employed a retrospective chart review, to gather data from CPT national progress note templates used within the Veterans Health Administration electronic health records system. Data from 55 Veterans charts from 15 states, who completed 12 sessions of CPT, and whose charts included measures of PTSD and depression symptoms were included in the study. The study utilized simultaneous multiple regressions to investigate the relationship between overall therapist adherence rates, adherence to specific elements of CPT, and treatment outcomes. Results indicated CPT was an effective treatment in this sample, reducing both PTSD and depression symptoms significantly, and demonstrated large effect sizes. Interestingly, overall therapist adherence rate did not account for a significant portion of the variance in final scores on the PTSD Checklist for DSM-5 (PCL-5) or the Patient Health Questionnaire (PHQ-9). When considering individual session elements of CPT, six were significant predictors of final scores on the PCL-5. Asking clients to complete practice assignments at the end of each session and reviewing intimacy related Challenging Belief Worksheets (CBW) in session 12 predicted decreases in PTSD symptoms as measured by the PCL-5. Conversely, addressing client concerns and questions about treatment, discussing and assigning the trauma account, introducing CBW's,

and introducing the intimacy module predicted increases in final PCL-5 scores. The following dissertation discusses the implications of these findings within the context of the current literature and contains suggestions for future research.

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## **Chapter I**

### **Introduction**

The Veterans Health Administration (VHA) is the largest provider of health care in the United States. In the post-Vietnam era, practitioners within the VHA found Posttraumatic Stress Disorder (PTSD) difficult to treat, possibly due to the paucity of treatment research at that time (Monson et al., 2006). Today, this research is more commonplace and Veterans who seek treatment for PTSD, depression, anxiety, and other mental health diagnoses through the VHA are increasingly encouraged to select Evidence Based Treatment's (EBT's). This push toward implementation of EBT's in the VHA occurred over the past 10-20 years as the field of psychotherapy in general issued a call to action for increased research in this area.

With a reported 2.2 million individuals having served in Iraq and Afghanistan as of 2013, the need for VA based physical and mental health services has continued to grow each year (Institute of Medicine, 2013). Cognitive Processing Therapy (CPT) for PTSD met the recommended criteria for being designated efficacious and was placed on the list of "Empirically Supported Treatments" in 1998 by the Society of Clinical Psychology. It is only one of a few EBTs offered for clients suffering from PTSD, however, it is one of the most widely researched in regards to its outcomes and has some of the strongest support for both efficacy and real-world effectiveness (Jonas et al., 2013). CPT is similar to exposure therapies in that it seeks to change the way clients react to and interact with their recollections of their traumas. Unlike exposure therapies, CPT focuses on the negative cognitions and distortions that have been created in a client's memory in the wake of a trauma, and how such distortions influence their current functioning. CPT also has a strong psychoeducational component that gives clients the language they need to discuss the impact of their trauma and understand changes in symptomology over

the course of treatment.

Current practices for therapist training in CPT within the VHA include a three-day training program followed by six months of weekly consultation calls to check progress and encourage adherence to the protocol. There is a dearth of research in the area of therapist adherence to the CPT protocol, or how it may impact outcomes for treatment. The proposed study will address this gap in the research literature by examining adherence to CPT session elements, and how such adherence may impact treatment outcomes for Veterans with PTSD.

According to the VHA, approximately 11-20% of Modern Warfare Veterans (Operation Enduring Freedom, Operation Iraqi Freedom, and Operation New Dawn), 12% of Gulf War Veterans, and 15% of Vietnam Veterans has symptoms which meet criteria for a diagnosis of PTSD in a given year (Gradus, 2016). The demand for efficient and evidence-based PTSD treatment, as well as trained practitioners to provide such treatment continues to be great. In 2006, the VHA introduced national trainings in both CPT and Prolonged Exposure (PE) for their mental health practitioners (Karlin et al., 2010). Ostensibly, these treatments were selected based upon the many published studies demonstrating their efficacy and effectiveness in treating PTSD. Multiple randomized controlled trials (RCT's), retrospective chart reviews, and meta-analyses have concluded that both treatments significantly decrease symptoms of PTSD, often to the point the participant no longer meets full criteria for a diagnosis (Forbes et al., 2012; Galovski, Blain, Mott, Elwood, & Houle, 2012; Jeffreys et al., 2013; Powers, Halpern, Ferenschak, Gillihan, & Foa, 2010; Resick, Nisith, Weaver, Astin, & Feuer, 2002).

### **Adherence to the Protocol**

CPT is a manualized treatment, meaning that although the nuanced delivery may vary slightly from therapist to therapist, the components of each session are prescribed and

standardized. It is recommended that CPT be conducted over the course of 12 sessions, in either a group, individual, or mixed format. Each session consists of different, yet overlapping content which has been described as ‘session elements.’ Content specific to the CPT protocol is designated ‘unique and essential’ and the number of such elements varies from session to session. Examples of this type of content include: educating the client about PTSD symptoms and treatment rationale, introducing new worksheets in the appropriate session, and assigning specific practice assignments each week. Session elements labeled ‘essential but not unique’ are consistent with Frank and Frank’s (1993) common factors of psychotherapy and include: establishing rapport, reviewing homework, and structuring the session effectively (Macdonald, Wiltsey-Stirman, Wachen, & Resick, 2014; Wiltsey-Stirman et al., 2013). Finally, any departure from the agenda or intervention utilized in session which is not part of the CPT protocol is designated a ‘proscribed element.’

As a manualized treatment, CPT’s effectiveness is logically assumed to rely, at least in part, on therapist overall adherence to its protocols. While therapist adherence is an oft controlled for variable in RCT’s and effectiveness studies (Forbes et al., 2012; Monson et al., 2006; Schnurr et al., 2007), to date it does not appear to have been tied directly to therapy outcomes in the literature. Once a VHA therapist has completed training in CPT, their adherence to the CPT protocol is no longer monitored or evaluated. The VHA created national templates for EBT progress notes for each session of CPT to be entered into the electronic medical record system. These templates list the session elements of CPT and provide space for the clinician to enter assessment data as well as their subjective session reflections. The clinician is asked to select those elements which were included in the present session, and leave blank those elements which were not covered in the session.

## **CPT Outcomes**

The outcome research for CPT is overwhelmingly positive, with consistent reports of client symptom reduction, whether it be PTSD or depression symptoms, as well as decreases in psychological distress, and anxiety (Jeffreys et al., 2013). Most often the use of CPT has been evaluated with clients with a diagnosis of PTSD who are sexual assault survivors and/or combat veterans. In a 2002 comparative study of CPT, PE, and a control group treating PTSD in a sample of sexual assault survivors, 53% of participants failed to meet diagnostic criteria for PTSD post-treatment (Resick et al., 2002). Similar results were produced with military veterans who were also survivors of sexual assault: 40% no longer met diagnostic criteria at a post-treatment follow-up interview (Monson et al., 2006). Several other studies have also reported that CPT significantly reduced PTSD, depression, and anxiety symptoms (Forbes et al., 2012; Jonas et al., 2013; Resick et al., 2008).

The effectiveness of CPT has been tested in both civilian and veteran populations for use with clients with a diagnosis of PTSD with various types of trauma (Monson et al., 2006; Jonas et al., 2013; Resick et al., 2002). Most often CPT effectiveness is measured via the reduction in PTSD symptomology as measured by widely used PTSD symptom checklists such as the DSM-5 derived twenty item PTSD Check List for DSM-5 (PCL-5). Because depression symptoms are often also present for CPT clients, reductions in scores on depression symptomology measures are often also reported as a measure of CPT outcome. Within the VHA system the Patient Health Questionnaire (PHQ-9) for depression is a recommended addition to the PCL-5 to track client outcomes (Resick, Monson, & Chard, 2014). In addition to these oft used measures, some researchers have also included statistics regarding what percentage of clients move from eligible to ineligible for PTSD diagnosis after CPT treatment.

Haagen, Smid, Knipscheer, and Kleber (2015) identified 57 RCT's, for a metaregression analysis of PTSD treatment outcome research. They found significantly higher treatment effect sizes for both CPT ( $g = 1.33$ ) and PE ( $g = 1.06$ ), than for other therapies such as Eye Movement Desensitization and Reprocessing (EMDR;  $g = .38$ ) or Stress Management Therapy (SMT;  $g = 0.16$ ). Forbes et al. (2012) recruited participants for an effectiveness study in a community clinic ( $N = 59$ ). Participants were randomized into the CPT and treatment as usual (TAU) conditions, and multiple outcome measures were used to establish the relative level of effectiveness in decreasing symptoms PTSD, depression, anxiety, and anger. Results indicated CPT was significantly more effective than the TAU condition. PTSD symptom severity scores on both a self-report and clinician-report measure significantly decreased for 66.7% of the participants in the CPT group, and 37.5% no longer met diagnostic criteria for PTSD. This is in contrast to results from the TAU condition which showed 34.5% experienced significant decreases in PTSD symptoms, and 13.0% could no longer be diagnosed with PTSD.

Suris, Link-Malcolm, Chard, Ahn, and North (2013) designed an RCT to investigate the efficacy of CPT in comparison with person-centered therapy (PCT), with survivors of military sexual trauma (MST). They found the participants experienced a significant reduction in PTSD symptoms with large effect sizes in the CPT treatment group (Cohens  $d = 1.02$ ) and PCT group (Cohen's  $d = 0.56-0.80$ ) on both self-report and therapist evaluated measures of symptoms of PTSD.

### **Present Study**

The proposed study had two overarching goals: to assess the rates of therapist overall adherence to the CPT protocol, and to investigate the relationship between CPT protocol adherence and client outcome. A critical component of this study is the examination of therapist

overall adherence to the specific elements delineated in the protocol for each CPT session, which allowed the researcher to analyze the impact of the overall adherence rate as well as the presence of critical session elements on treatment outcome. Using data from the CPT national progress note templates, this study examined the relationship between treatment outcome and therapist adherence to the protocol using both overall adherence rate and presence or absence of specific elements as independent variables.

Extant literature speaks to the efficacy and effectiveness of CPT, however, the rates of post-training therapist adherence have not been evaluated, nor have the impact of individual session elements. This study hopes to fill those gaps in the existing literature by using a retrospective chart review of VHA clients who have completed CPT, and gathering information pertinent to their sessions of CPT and outcome measurements.

### **Research Questions and Hypotheses**

**Question I.** Is there a statistically significant difference in self-reported symptoms of PTSD, as measured by change scores on the PCL-5 between the beginning and completion of CPT in this sample?

*Hypothesis I.* Final scores on the PCL-5 will be lower than PCL-5 scores at the beginning of treatment.

**Question II.** Is there a statistically significant difference in self-reported symptoms of depression, as measured by change scores on the PHQ-9 between the beginning and completion of CPT in this sample?

*Hypothesis II.* Final scores on the PHQ-9 will be lower than PHQ-9 scores at the beginning of treatment.

**Question III.** Does the percentage of overall therapist adherence to the session elements of the CPT protocol predict final score on the PCL-5 in this sample?

*Hypothesis III.* Increased therapist overall adherence to the session elements of the CPT protocol will lead to lower final session scores on the PCL-5.

**Question IV.** Does the presence of each designated 'essential and unique' or 'essential but not unique' element of CPT predict PTSD symptoms assessed by the PCL-5?

*Due to the exploratory nature of research question IV, no a priori hypothesis was formulated.*

**Question V.** Does the percentage of overall therapist adherence to the session elements of the CPT protocol predict final score on the PHQ-9 in this sample?

*Hypothesis V.* Increased therapist overall adherence to the session elements of the CPT protocol will lead to lower final session scores on the PHQ-9.

**Question VI.** Is the presence of each designated 'essential and unique' or 'essential but not unique' element of CPT related to depression symptoms assessed by the PHQ-9?

*Due to the exploratory nature of research question VI, no a priori hypothesis was formulated.*

## **Chapter II**

### **Review of the Literature**

#### **History of PTSD**

The diagnosis of posttraumatic stress disorder first appeared in the third edition of the DSM in 1980 and is the term used to describe a specific cluster of symptoms often reported after a traumatic event. Wars in Iraq and Afghanistan have produced large numbers of soldiers returning home following exposure to countless types of traumatic experiences (Chard, Schumm, Owens, and Cottingham, 2010). This adds to the already overwhelming number of Veterans from prior wars, specifically Vietnam and the first Gulf War, seeking relief from trauma related symptoms. However, it is important to note this symptomology did not begin with Veterans returning home from the Vietnam War.

Historical records from the Civil War refer to soldiers returning home with what was termed ‘soldiers heart,’ ‘nostalgia,’ or ‘nervous disease.’ Many World War I Veterans were said to suffer from ‘shellshock’ or ‘battle fatigue’ (Dombo, Gray, & Early, 2013). These men and women were privately shamed for what some people considered weakness of heart and mind, and were often denied honors bestowed upon other soldiers. The addition of trauma related disorders to the DSM in 1980 marked a shift in how these symptom clusters were treated, at least in mental health terms. The Veterans Administration began offering individual and group therapy for those soldiers who sought care. As these Veterans have sought treatment, our understanding of PTSD as a diagnosis has improved exponentially.

Data gathered so far indicates nearly 15% of U.S. military personnel serving in Operation Enduring Freedom, Operation Iraqi Freedom, and Operation New Dawn (OEF-OIF-OND) have developed symptoms consistent with a diagnosis of PTSD (Sundin, Fear, Iversen, Rona, &

Wessley, 2010). It is important to note this number reflects only those Veterans seeking services in a setting in which data can be gathered; meaning the number afflicted could be significantly higher. Additionally, other factors can impact the likelihood an individual will develop trauma-related symptoms including exposure to trauma prior to military service (Foa, 2011) the number of deployments (Kline et al., 2010), frequency of exposure to traumatic events while deployed (Hoge et al., 2004; Seal et al., 2009) and likely many other factors yet to be identified.

PTSD is considered by many experts to be a chronic condition, and can be associated with serious outcomes for many of those afflicted. The rate of Veteran suicide has grown by 26 percent between 2005 and 2007, and while the VHA has taken steps to address this epidemic, this rate continues to grow (APA, 2013b). While increased incidence of PTSD is likely only one explanation for the increase in suicide rate, it appears to be a significant correlation (Dao & Lehren, 2013). Veterans with PTSD can experience significant problems in addition to the symptoms directly related to their diagnosis. These can include but are not limited to: higher incidences of suicide (Dao & Lehren, 2013), underemployment and homelessness (Schnurr et al., & Marx, 2009), and comorbid mental health diagnoses such as anxiety, depression, and substance abuse (Kehle et al., 2011).

The DSM-5 provides criteria for clinicians to use when assessing for a diagnosis of PTSD. A diagnosis of PTSD requires the presence of a set of symptoms that stem from a specific and identifiable traumatic event. Symptoms of PTSD are grouped together in sets (Criterion A-G), and a diagnosis requires an individual to endorse one or two from each set (APA, 2013a). The first category is referred to as intrusion symptoms and includes nightmares, flashbacks, and sudden distressing memories of the trauma. Persistent avoidance of anything that may remind an individual of the traumatic event is another set of symptoms, largely considered a hallmark of

PTSD. Changes in cognition and mood associated with the event are also required and include loss of memory about the event, negative automatic thoughts or beliefs about the self or the world, and feelings of detachment from others. Alterations in arousal when remembering the event- irritability, hypervigilance, and sleep disturbances make up the final grouping. Individuals must experience these symptoms for greater than one month and must report significant impact in one or more area of basic functioning.

The National Center for PTSD has identified the Clinician Administered PTSD Scale for DSM-5 (CAPS-5) as the “gold standard” diagnostic tool for clinician use (Weathers et al., 2013a). It is a structured interview consisting of 30 items which addresses each of the symptom criteria for a diagnosis of PTSD in DSM-5. The questions are additionally worded in such a way that symptom presence, frequency, and intensity data are gathered throughout the interview. Administration of this interview takes approximately one hour, and it can be used as both a pre- and post-treatment measure of symptoms.

Many clinicians diagnose PTSD after a thorough clinical interview, often with supplementary data derived from symptom checklists such as the PTSD checklist for DSM-5 (PCL-5; Blevins, Weathers, Davis, Witte, & Domino, 2015). While the PCL-5 is not intended to be a standalone diagnostic tool, it asks the client to provide information about each of the relevant PTSD symptom clusters, and when combined with an intake can be used for diagnostic purposes.

### **History of PTSD Treatment**

Cognitive-Behavioral Therapy (CBT) was originally adapted to treat symptoms of PTSD in two ways. Systematic desensitization and stress inoculation training (SIT) were promising, and studies revealed some symptoms of PTSD decreased after treatment (Foa, Rothbaum, Riggs,

and Murdock, 1991; Lee, Gavriel, Drummond, Richards, & Greenwald, 2002). However, these treatment approaches did not address the negative cognitions or false beliefs about the self and the world. Clients completing anxiety management training reported decreases in fear responses and symptoms of anxiety and depression. Unfortunately, the other sets of PTSD symptoms were unaffected by this treatment. Further, the studies demonstrating the efficacy of these approaches were largely uncontrolled.

Foa et al. (1991) investigated “whether improvement was due to the specific procedures employed” in SIT and prolonged exposure (PE) “or to nonspecific factors such as therapist contact” in a supportive counseling setting (p. 715). This RCT also employed a waitlist control group, to test for placebo effects and variables outside the therapeutic relationship. Foa et al. (1991) found that immediately following the conclusion of therapy, the frequency and severity of PTSD symptoms were significantly reduced in all three treatment groups ( $p < .02$ ,  $p < .001$ , &  $p < .001$  respectively). Interestingly, participants completing SIT reported lower symptomology than any of the other groups. However, at the three month post-treatment follow-up, clients from the PE condition reported fewer symptoms overall and lower scores on a state-trait anxiety scale than those from the SIT group. The researchers concluded that anxiety management therapy such as SIT appears to relieve symptoms initially, but systematic desensitization may have more lasting effects.

**Eye Movement Desensitization and Reprocessing.** EMDR is based upon an information processing model (Leeds, 2016). The model asserts that when experiencing trauma, the brain can sometimes store the emotional and cognitive content of these memories in maladaptive ways. Therapists utilizing EMDR ask clients to recount their trauma narrative which activates the target memory network, while making purposeful bilateral eye movements aimed at

creating a dual attention condition within the session. This split attention during the processing task creates an environment in which the client can begin to reprocess the trauma. This has been identified in the literature as the primary mechanism of change in EMDR.

A meta-analysis of 26 RCT's conducted over 22 years was also conducted to investigate the efficacy of EMDR for clients with PTSD (Chen et al., 2014). All studies included were treatment/no-treatment control trials and were administered by EMDR trained professionals. Studies were also assessed for methodological quality and were excluded if they were deemed to have a high risk of bias. In order to compare the efficacy across studies using different PTSD outcome measures the researchers calculated Hedge's  $g$ , a measure of standardized difference. Trials included in the review varied in length from 2 to 4 sessions, with an average effect size of  $g = -.662$ ,  $p < .001$ , considered a moderate effect; notably, the effect size for EMDR trials longer than 3 sessions was greater than those three sessions or less ( $g = -.800$  vs.  $g = -.601$ ; Chen et al., 2014).

In 2013 an efficacy and comparative effectiveness review of evidence-based PTSD treatments was compiled for the U.S. Department of Health and Human Services by 14 investigators associated with the Research Triangle Institute International (RTI International) – University of North Carolina Evidence-based Practice Center. Investigators included 92 client trials (both psychological and pharmacological treatments) in the review and used quantitative methods to assess the strength of evidence for each treatment in addition to the efficacy of treatment. The Clinician-Administered PTSD Scale (CAPS) was used as the outcome measure by which the efficacy of treatment was assessed. In regards to the EMDR studies included in the review, despite meeting criteria for inclusion, there was insufficient evidence from which to draw firm conclusions about comparisons to other psychological treatments or pharmacological

treatments (Jonas et al., 2013). EMDR's standard mean difference (SMD) in CAPS scores was statistically significant, but was considered to have "low strength of evidence" for efficacy because of irregularity and imprecision in the four EMDR studies included in the review. Comparatively, CBT-Exposure had an SMD in CAPS scores of -1.27, with a high strength of evidence, while CPT had an SMD in CAPS scores of -1.40 with moderate strength of evidence (Jonas et al., 2013). All three of these SMD's are considered to be large effect sizes using Cohen's *d* (Cohen, Cohen, West, & Aiken, 2013).

**Prolonged Exposure.** Prolonged Exposure (PE) was created from the principles of CBT, and was originally designed with a focus on sexual assault survivors suffering from trauma related symptoms (Foa et al., 1999). It has been designated efficacious by Division 12 of APA, and is one of the most highly recommended therapies for PTSD offered by the VHA and Department of Defense (DoD). The therapy itself consists of approximately 8-15 sessions beginning with a psychoeducational piece intended to inform Veterans, and their families, about the PTSD diagnosis and what to expect from treatment. The manual calls for the client to actively participate in imaginal exposure exercises that elicit recall of the traumatic event. Once the stress and fear reactions begin to decrease with imaginal exposure the client moves on to in-vivo exposure exercises. These in-vivo exposure activities serve a dual purpose. Participating in the in-vivo exercises means the client is both addressing the avoidance that impacts their daily life, and the negative cognitions and beliefs they have built up to reinforce the avoidance.

Following the results from Foa et al. (1991) and multiple revisions of the PE manual, Foa et al. (1999) designed a study to investigate whether combining SIT and PE would result in additive effectiveness. Their study met criteria to be designated an RCT, and focused specifically on female survivors of sexual assault. Participants were assigned to one of four treatment groups;

PE, SIT, combined PE and SIT, and the wait-list control. The Structured Clinical Interview for DSM-III Diagnoses (SCID), a measure of PTSD symptomology, and a social adjustment scale were administered pre- and post-treatment. They found all three active therapy groups to be effective in significantly reducing PTSD symptoms. However, their hypothesis that SIT and PE combined would result in additional decreases in scores was not supported by the data. Further, PE was found to be more effective, though not statistically significantly, than the other two treatment conditions on several of the treatment outcome measures. Foa et al. (1999) recommended additional research to provide evidence of the superiority of PE.

Foa, Hembree, Cahill, Rauch, and Riggs (2005) took this line of research a step further and added a check on therapist adherence to the treatment manual. Multiple raters watched a random sampling of recorded sessions and rated them independently. Inter-rater reliability was measured at 88%, and raters found that therapists were completing 97% of the elements in the manual. This also represented the largest sample so far, with 171 female survivors of sexual assault completing PE with or without a cognitive restructuring component. As predicted, PE was found to be an effective treatment for PTSD in this sample, but no significant differences between the groups was found (Foa et al., 2005).

Powers et al. (2010) set out to evaluate decades of outcome research for PE for consistency and strength of results. They evaluated each RCT purported to test PE's effectiveness and selected 13 RCT's (N = 675) that met criteria for adherence to exposure therapy for their meta-analysis. Results demonstrated the overall effectiveness of PE with large effect sizes,  $g = 0.77$ ) on primary outcome measures of PTSD symptoms (Hedges'  $g = 1.08$ ) and secondary outcome measures of general subjective distress (Hedges'  $g = 0.77$ ). These results affirm the designation of efficacious and specific for PE as a treatment for chronic PTSD. It is

important to note that not all clients completing a course of PE find it individually effective; the next portion of this literature review will cover cognitive processing therapy, which is also recommended by the VHA and DoD.

### **Cognitive Processing Therapy**

One of the newest evidence supported treatments for PTSD, and the focus of this dissertation, is Cognitive Processing Therapy. Resick, Monson, and Chard (2017) describe CPT as an efficacious treatment for trauma related disorders stemming from a social cognitive conceptualization of the impact of trauma on an individual. Like exposure therapies CPT seeks to alter the way a client both reacts to and interacts with memories of the trauma. However, CPT focuses on the content of cognitions and distortions that have been created in a client's memory of the event over time, and how those impact their functioning in the present. They recommend CPT be completed over the course of approximately 12, one-hour sessions. These sessions are arranged in three modules completed in a specified order (Resick et al., 2014).

The first module consists of four sessions and focuses on psychoeducation with components designed to expose the client to concepts and terminology necessary for treatment completion, and to prepare the client for possible changes in symptomology frequently reported during an episode of care (Chard, Ricksecker, Healy, Karlin, & Resick, 2012). During the first module clients are also asked to discuss the meaning they have assigned to their trauma, and then to identify links between thoughts, feelings, and behaviors surrounding the trauma. Clients are asked to write an impact statement outlining the meaning they have given the event in their lives and then to identify links between thoughts and feelings surrounding the trauma. Next clients complete a trauma narrative and identify points at which their recovery from the experience(s) has altered their beliefs about the self and surrounding world. These distorted beliefs are used

throughout the remainder of treatment, and clients answer questions about their accuracy and identify patterns of problematic thinking that reinforce them. Recently, however, researchers have suggested the trauma narrative is not an essential component of the therapy for all clients and CPT without the written account (CPT-C) has been found to be equally efficacious in RCT's (Resick et al., 2008).

Additionally, this first module calls for the therapist to teach the client basic principles of cognitive behavioral therapy, namely the link between thoughts, behaviors, and emotions (Chard et al., 2012). One of the theoretical bases for CPT is the idea that many individuals experience trauma, but not all will develop symptoms consistent with PTSD. Theorists behind CPT posit that after a trauma, some survivors become stuck in their thinking about their role in the trauma ("I should have known he would hurt me"), their beliefs about themselves ("I have no control over my future"), and the world ("people in authority always abuse their power"). During this phase of CPT, the therapist and client work together to identify these 'stuck points' and utilize A-B-C worksheets to find links between the thoughts and their subsequent emotions and behaviors (Resick et al., 2014). Clients are asked to complete brief reading assignments and A-B-C worksheets between each session of this module.

The second module consists of three sessions and focuses on specific cognitive therapy skills. These sessions utilize the Challenging Questions Worksheet (CQW), Patterns of Problematic Thinking (PPT), and Challenging Beliefs Worksheet (CBW) to examine the client's stuck points in greater detail (Chard et al., 2012). The PPT worksheet contains questions which ask the client to consider which of the seven common cognitive distortions described are being activated for each stuck point s/he has identified. By identifying the pattern of problematic thinking, the client can begin to interrupt the pattern and activate healthier cognitions (Resick et

al., 2014). Throughout these first seven sessions the therapist utilizes Socratic questioning to encourage the client to attain a more balanced interpretation of their stuck points. Clients are asked to complete worksheets using their identified stuck points as a practice assignment between appointments.

The third and final module consists of five sessions which focus on thoughts and beliefs within five specific areas: safety, trust, power and control, esteem, and intimacy (Chard et al., 2012). The client utilizes the CBW almost exclusively during this module, and completes them with one of the five areas in mind each week. The CBW is a compilation of each of the tools the client has used up to this point in treatment including: the A-B-C worksheet, PPT, and CQW. The worksheet asks the client to choose a stuck point, identify the accompanying thoughts and emotions, identify problematic patterns, and utilize challenging questions to examine the strength of their belief in the stuck point. This process further allows the client to see how the trauma, and their subsequent cognition and belief changes, has impacted their present life. The completed CBW's are reviewed each week in session, and the therapist continues to use Socratic questions to encourage deeper understanding of the topics (Resick et al., 2014).

The clinicians responsible for the continuing development of CPT also created adherence checklists to be used for training and research purposes (Macdonald et al., 2014). These checklists designate individual elements contained within each session as unique and essential, essential but not unique, and proscribed. For example, elements designated as essential and unique in various sessions are: assigning session specific homework, identifying stuck points from the impact statement, and introducing a new module topic. Elements labeled as essential but not unique are the same for each session throughout the protocol and include: establishing rapport, creating a session agenda, and reviewing completed homework with the client. Finally,

proscribed elements include any part of the session which is outside the agenda or introduces an intervention that is not consistent with the CPT protocol.

**Outcome measurement.** Treatment outcome is built into the CPT protocol from the first session. Two standardized symptom checklists are recommended for use on a weekly basis throughout the 12 session treatment protocol (Resick et al., 2014). Results from both checklists are used as a check-in at the beginning of each session, and as a way to track progress throughout the course of treatment. Resick et al. (2014) advises therapists to discuss possible worsening of symptoms early in therapy, but once the midway point of CPT has been reached these symptoms typically begin to decrease significantly. If this symptom reduction does not begin to occur by session six or seven, the data can be used as the starting point for a conversation about what may not be working for the client.

The PCL-5 was developed to assess symptoms of PTSD consistent with the criteria required for diagnosis in the DSM-5 (see Appendix A). Symptoms associated with avoidance of reminders of the trauma are assessed with items such as, “avoiding external reminders of the stressful experience,” and changes in cognition or mood items inquire about “irritable behavior, angry outbursts, or acting aggressively.” Re-experiencing, or intrusion, symptoms are captured with items such as; “repeated, disturbing dreams of the stressful experience,” while arousal symptoms are assessed with an item such as, “feeling jumpy or easily startled” (Weathers et al., 2013b). The PCL-5 consists of 20 items which utilize a five-point, Likert-type scale (0 = not at all, 4 = extremely). Scores on this measure range from zero to 80, with higher scores indicating increased distress.

Blevins et al. (2015) updated the existing PTSD checklist for DSM-IV to remain consistent with the diagnostic criteria for PTSD put forth in DSM-5. They established initial

psychometric properties of the PCL-5 using two samples. The first was made up of students who had been exposed to “a very stressful life event” (N = 278) and the second consisted of undergraduate students (N = 1,158) who had not necessarily been impacted by a traumatic event. Participants completed the PCL-5 along with a battery of existing valid and reliable assessments. Researchers used Cronbach’s Alpha to assess internal consistency, which revealed reliability of the new measure was excellent within their samples ( $\alpha = .94$  &  $\alpha = .95$ ) respectively. Bovin et al. (2015) confirmed the psychometric properties of the PCL-5 in their study using a Veteran sample, displaying excellent internal consistency,  $\alpha = .96$  (N = 486), and test-retest reliability,  $r = .84$  (N = 90). Blevins et al. (2015) administered additional PTSD assessments including the PCL for DSM-IV, Posttraumatic Diagnostic Scale, and the Detailed Assessment of Posttraumatic Stress. Correlations between these measures and the PCL-5 demonstrated convergent validity ( $r = .84-.85$ , all  $p < .01$ ).

Blevins et al. (2015) established discriminant validity by comparing participants’ scores on the PCL-5 to those of subscales of the Personality Assessment Inventory (PAI). Results indicated that the PCL-5 was positively correlated with the construct of depression in the current sample ( $r = .60$ ). As expected, correlations with theoretically unrelated constructs such as antisocial personality features and mania were low ( $r = .39$ ,  $r = .31$ ). Wortmann et al. (2016) investigated the generalizability of the results of Blevins et al. (2015) using a sample of active duty and recently retired military service members (N = 912). They found the PCL-5 to have high internal consistency with their sample ( $\alpha = .95$ ) for the overall scale, and their predictions about both convergent and discriminant validity were well supported using a variety of scales, with an overall effect size of  $r = .94$ , a large effect. Wortmann et al. (2016) also tested the PCL-5’s sensitivity to clinical change and found it to be comparable to the ability to detect change

using PTSD Symptom Scale Interview (PSS-I), a well-established measure for assessing symptom change. The concordance between the change scores on the PCL-5 and the PSS-I for this sample was  $r = .68$ , indicating the change scores were highly correlated and “of nearly equal magnitude.”

The Patient Health Questionnaire–9 (PHQ-9) is also recommended for weekly administration during CPT to assess for changes in self-reported symptoms consistent with depression (Resick et al., 2017). As the PCL-5 is highly correlated with the construct of depression, tracking these symptoms throughout treatment appears useful for both process and outcome research purposes. Additionally, diagnoses of PTSD and depressive disorders are often comorbid, and have been estimated to occur in as many as XXXX cases (Campbell et al., 2007). This measure consists of nine questions, and utilizes a four-point Likert-type response scale (0 = not at all, 3 = nearly every day). Scores on the PHQ-9 can range from zero to 27, with higher scores representing higher levels of depression (see Appendix B; Kroenke & Spitzer, 2002).

The PHQ-9 was developed for use as a screening tool for depression. Kroenke, Spitzer, and Williams (2001) established initial reliability and validity for this measure of depression severity. In a study of clients in outpatient settings ( $N = 6,000$ ) both the internal consistency reliability ( $\alpha = .86$  &  $.89$ ) and test-retest reliability ( $\alpha = .84$ ) were excellent. Huang, Chung, Kroenke, Delucchi, & Spitzer (2006) assessed the reliability for the PHQ-9 use with clients from racially and ethnically diverse backgrounds. They administered the scale to a diverse group of clients ( $N = 5,053$ ) and found the internal consistency to be excellent ( $\alpha = .79$ -. $89$  when separated by racial/ethnic groups), and consistent with the psychometrics reported in earlier studies.

The PHQ-9 was originally developed as a diagnostic screening tool for symptoms

consistent with depression. Lowe, Kroenke, Herzog, and Grafe (2004) assessed the PHQ-9's appropriateness for use as a research outcome measure. Clients with no symptoms of depression, symptoms consistent with unspecified depressive disorder, and Major Depressive Disorder were recruited for participation in the study. The Structured Clinical Interview for DSM-IV was administered as a pre- and post-measure to demonstrate convergent validity and determine the presence of absence of depressive symptoms meeting criteria for diagnosis. Lowe et al. (2004) found that the PHQ-9, when administered as a pre- and post-measure, was able to detect changes in symptoms over time. Further, in the group of participants which experienced decreases in depression levels, the effect sizes for the PHQ-9 change scores were large ( $N = 52$ ;  $ES = -1.33$ ). In the two groups where the symptoms of depression either remained stable or worsened the effect sizes were  $ES = -.021$  ( $N=91$ ) and  $ES = 0.47$  ( $N = 24$ ) respectively.

Criterion validity was established by comparing scores on the PHQ-9 to depression diagnostic status following an intake with a therapist. Results of a ROC curve analysis indicated the PHQ-9 demonstrated both sensitivity and specificity in differentiating between clients with and without depression meeting diagnostic criteria. Martin, Rief, Klaiberg, and Braehler (2006) sought to establish validity for the PHQ-9 in a general population sample. They recruited a sample of 2066 participants who completed the PHQ-9, the General Health Questionnaire-12 (GHQ-12) which measures "severity of psychological disturbance" and Brief-Beck Depression Inventory (BDI). Results indicated scores on the PHQ-9 are highly correlated with scores on the brief BDI ( $r = .73$ ) as well as scores on the GHQ-12 ( $r = .59$ ).

**Outcome research.** In 1995 there was a push within the American Psychological Association (APA) to recommend specific treatments in psychotherapy which were based upon outcome research. Chambless and Hollon (1998) recommended a set of criteria for evaluating the

usefulness of data reported in an outcome study. They determined that randomized controlled trials (RCT's) should be the preferred study design for this purpose. Additionally, for a treatment to receive the designation of efficacious it must be tested using a treatment manual, compared to a control group, and the findings must be consistent across at least two independent studies. Cognitive Processing Therapy for PTSD met these criteria and was placed on the list of "Empirically Supported Treatments" released by the Society of Clinical Psychology in 1998.

Resick et al. (2002) designed an efficacy study for the treatment of PTSD following a sexual assault (N = 121) with three conditions: CPT, PE, and a minimal attention condition. Participants that completed therapy reported their symptoms of PTSD were significantly decreased. At post-treatment 53% of participants in both treatment groups no longer met diagnostic criteria for PTSD.

Monson et al. (2006) evaluated the efficacy of CPT, originally created for survivors of sexual assault, with a Veteran population. As expected, CPT decreased reported symptoms for Veterans at similar levels to civilian populations. Half of the participants reported significant change in their symptoms and overall improvements in general functioning at the completion of treatment. At the one-month follow-up interview 40% of participants completing CPT no longer met diagnostic criteria for PTSD ( $\chi^2(1, N = 60) = 7.68, p < .01$ ). This particular RCT design included measures of depression, anxiety, and guilt distress. Scores on these measures indicated significant improvements in symptoms on each measure.

Resick et al. (2008) conducted a CPT dismantling study in which participants (N = 150) were assigned to one of three treatment groups. Trained therapists provided full-protocol CPT, the cognitive therapy portion of CPT (CPT-C), or the processing component only (written account, WA). All participants completed assessments of PTSD, depression, and other ancillary

symptom measures. Additionally, all sessions were recorded and reviewed by multiple raters who assessed for both adherence to the various protocols, and therapist competence with the material. Resick et al. (2008) used the Clinician-Administered PTSD Scale (CAPS) to assess for presence and severity of PTSD symptoms as both a pre-test and post-test measure. Change scores indicated that participants in all three treatment conditions experienced significant decreases in PTSD symptoms by the conclusion of treatment. Those in the CPT group had an average change score of 36.1 ( $p < .001$ ), CPT-C completers recorded average change scores of 40.8 points ( $p < .001$ ), and the lowest change scores (31.9;  $p < .001$ ) were reported in the written account only condition.

Much of the PTSD treatment outcome research includes measurement of depression symptoms in addition to symptoms related directly to the PTSD diagnosis. Ramsawh, et al. (2014) utilized data collected in the 2008 Department of Defense Survey of Health Related Behaviors Among Active Duty Military Personnel (DoD HRB;  $N = 28,546$ ) to investigate the incidence rates of PTSD, depression, suicidality, and the comorbidities among them. Ramsawh et al. (2014) randomly selected 5,472 participants (weighted  $N = 468,788$ ) from the larger sample for use in their analysis. As expected, their results confirmed the hypothesis that symptoms consistent with PTSD and depression are co-occurring, more often than not. In fact, only one percent of their sample (weighted  $N = 5567$ ) met the diagnostic criteria for PTSD only, while 11% (weighted  $N = 52,686$ ) met criteria for both PTSD and depression. Other studies have placed the PTSD/depression comorbidity occurrence for Veterans as high as 30-50% (Kessler, Sonnega, Bromet, Hughes & Nelson, 1995; Resick et al., 2002). These results lend support to the continued monitoring of both PTSD and depression symptoms during treatment.

Liverant Suvak, Pineles, and Resick (2012) investigated the relationship between changes

in PTSD and depression symptomology in CPT clients, as well as the timing of such changes. Liverant et al.'s (2012) sample consisted of 126 of Resick et al.'s (2008) comparative treatment study participants. Participants were exposed to one of three treatment conditions, as noted above: CPT, CPT-C, or WA. Liverant and colleagues conducted a lagged mediation analysis to assess whether changes in PTSD or depression preceded the other, rather than assessing for factors contributing to differences across treatment conditions. Results indicated that there were no temporal differences in the changes in symptoms of depression and PTSD. In other words, neither changes in depression nor PTSD preceded the other when both were diagnosed prior to the various CPT treatment conditions (Liverant et al., 2012).

Forbes et al. (2012) designed an RCT for CPT in an Australian healthcare clinic for Veterans. Instead of using expert-level CPT clinicians, they trained clinicians within the clinic to provide CPT for the purposes of the study. Additionally, they did not advertise for the purposes of recruitment, and instead took referrals for CPT treatment as they came in to the clinic and randomly assigned them to CPT or TAU. Forbes et al. (2012) found that not only did CPT significantly decrease participants reported symptoms of PTSD, anxiety, and anger, it was significantly more effective than TAU ( $\chi^2(1, n = 59) = 6.11, p < .01$ ). PTSD symptom severity scores on both a self-report and clinician-report measure significantly decreased for 66.7% of the participants in the CPT group, and 37.5% no longer met diagnostic criteria for PTSD. This is in contrast with results from the TAU condition which showed 34.5% experienced significant decreases in PTSD symptoms, and 13.0% could no longer be diagnosed with PTSD.

**CPT adherence research.** Much of the process and outcome research used to establish a therapeutic approach as an evidence based treatment includes a procedure for measuring therapist competence and adherence to the protocol. Waltz, Addis, Koerner, and Jacobsen (1993)

recommended these be included in psychotherapy trials of both efficacy and effectiveness to strengthen the conclusions which can be drawn from the data. Bellg et al. (2004) framed the impetus behind adherence and competency checks in research as a necessity for ensuring the reliability and validity of the delivery of psychotherapy interventions. By verifying fidelity to a treatment protocol, the effects of some confounding variables such as treatment delivery and allegiance to an alternate theoretical model, can be minimized.

Resick et al. (2008) utilized a thorough adherence and competency check in their dismantling study. The results of this study added supporting evidence to the claim that CPT without the written trauma account is at least as effective as the full CPT protocol. Further, the results suggested participants in the written account only condition experienced significantly less reduction in PTSD symptoms than those in either of the two other groups. However, the adherence data in this study suggests this conclusion may need to be interpreted with caution. In this study, adherence to the CPT and CPT-C protocols was measured at 90% with 97-100% agreement between raters. Conversely, the written account only condition adherence rate was recorded at 80%, with an 85% interrater agreement rate, and two recorded violations of proscribed elements to the treatment (Resick et al., 2008). It seems possible that some of the variance accounted for in the outcome statistics, could have been explained by differences in adherence rates between treatment conditions.

Generally, evaluation of adherence and competency is achieved by recording each session and asking multiple raters to evaluate them based on adherence to the protocol using a list of elements that are considered unique and essential to that session, essential but not unique elements, and proscribed elements that deviate significantly from the CPT protocol (Macdonald et al., 2014). Adherence has been defined as the “extent to which a therapist used interventions

and approaches prescribed by the treatment manual and avoided the use of intervention procedures proscribed by the manual” (Waltz et al., 1993, p. 620). Adherence is rated with a dichotomous “yes or no” scale, and requires only that the therapist has completed the main objective for the session (see Appendix C). For example, in session one the therapist must provide psychoeducation about the symptoms of PTSD. The therapist can adhere to this requirement in the protocol without meeting the four sub-objectives identified in the competency evaluation portion of the form.

Therapist competence can be defined as “the level of skill shown by the therapist in delivering the therapy” (Waltz et al., 1993, p. 620). Competence is rated using the same elements with a six-point Likert-type scale (1 = poor, 5 = excellent, N/A = not applicable). Additionally, multiple elements have been identified in each session as “major” and must be present in order for a competency rating of satisfactory (3) or higher to be given (Macdonald et al., 2014). For example, in session one the therapist is required to educate the client regarding the four symptom clusters of PTSD and present that information in appropriate context provided in the manual. The therapist would receive a rating of satisfactory for this; however, a rating of excellent would be withheld unless s/he also described examples of the symptom types and encouraged the client to provide their own examples.

The effectiveness of manualized CPT in VA clinics throughout the country has been well established in the literature, however, a search revealed no existing publications addressing compliance with the protocol once a therapist has been certified in the delivery of the therapy. Further, there does not appear to be any research validating the existing adherence and competency criteria. The current forms appear to have been created utilizing the information contained within the CPT manual and using the theoretical bases of both CBT and CPT. The

outcome research speaks to the validity and reliability of the treatment protocol itself, but does not illuminate the specific elements required for change to occur. Establishing the compliance rates for the CPT protocol, and investigating the validity of the existing critical and essential elements within CPT are vital next steps in this body of research.

Currently, adherence and competency with respect to the provision of CPT in the VHA is evaluated through weekly consultation calls for a period of six months. The VHA created national progress note templates for use with clients participating in CPT and began requiring clinicians to utilize them several years ago (see Appendix C). These templates include information which corresponds with many of the elements on the existing adherence and competency forms. By collecting data from progress notes utilizing these templates, the researcher will be able to conduct analyses aimed at discovering if these elements account for significant portions of variance in the outcome measures. Additionally, there is no current literature measuring therapist compliance with the manualized CPT protocol outside of laboratory settings. In summary, the current study aims to investigate fidelity levels with the CPT protocol and whether or not the identified session elements impact client outcome significantly. Outcome will be measured using scores on measures of PTSD and depression symptoms as recommended within the CPT protocol.

### **Research Questions and Hypotheses**

**Question I.** Is there a statistically significant difference in self-reported symptoms of PTSD, as measured by change scores on the PCL-5 between the beginning and completion of CPT in this sample?

*Hypothesis I.* Final scores on the PCL-5 will be lower than PCL-5 scores at the beginning of treatment.

**Question II.** Is there a statistically significant difference in self-reported symptoms of depression, as measured by change scores on the PHQ-9 between the beginning and completion of CPT in this sample?

*Hypothesis II.* Final scores on the PHQ-9 will be lower than PHQ-9 scores at the beginning of treatment.

**Question III.** Does the percentage of overall therapist adherence to the session elements of the CPT protocol predict final score on the PCL-5 in this sample?

*Hypothesis III.* Increased therapist overall adherence to the session elements of the CPT protocol will lead to lower final session scores on the PCL-5.

**Question IV.** Does the presence of each designated 'essential and unique' or 'essential but not unique' element of CPT predict PTSD symptoms assessed by the PCL-5?

*Due to the exploratory nature of research questions IV, no a priori hypothesis was formulated.*

**Question V.** Does the percentage of overall therapist adherence to the session elements of the CPT protocol predict final score on the PHQ-9 in this sample?

*Hypothesis V.* Increased therapist overall adherence to the session elements of the CPT protocol will lead to lower final session scores on the PHQ-9.

**Question VI.** Is the presence of each designated 'essential and unique' or 'essential but not unique' element of CPT related to depression symptoms assessed by the PHQ-9?

*Due to the exploratory nature of research question VI, no a priori hypothesis was formulated*

## **Chapter III**

### **Methods**

The current study employs an explanatory correlational design using archival data acquired from the Veterans Health Administration (VHA) national database to explore the relationship between overall therapist adherence to the CPT protocol and client self-reported symptoms of PTSD and level of depression as measured by the variance in final scores on the PCL-5. The data for therapists' adherence to the elements of CPT was extrapolated from therapists' notes in client charts using the national CPT templates available for use within the VHA system. For the purposes of establishing the effectiveness of CPT in the current sample, client PTSD symptom reduction was measured using change scores on the PCL-5 pre- and post-treatment. Additionally, reduction in depression symptoms was examined using change scores on the PHQ-9, administered at the beginning and end of treatment, when available. When examining the relationship between adherence to the CPT protocol and treatment outcome, variance in final scores on the PCL-5 were utilized as the dependent variable.

### **Procedure**

Prior to data collection, the Human Subjects Committee at the University of Kansas in Lawrence, KS as well as the Kansas City VA Medical Center Institutional Review Board reviewed and approved all procedures and ethical issues related to the current study. The chart reviews for this study were conducted using the CAPRI/VistAWeb national electronic medical records system through the VHA using a secure connection. Veterans were identified as candidates for this project if they had completed a course of CPT, had recorded pre- and post-treatment PCL-5 scores, and had progress notes with the appropriate CPT national templates in their charts. A cursory chart review determined if the Veteran completed the full course of CPT,

which was required for inclusion in the final dataset. A full chart review was only completed once eligibility for the study criteria had been established.

As this data included protected health information (PHI), additional security steps were taken to ensure the security and confidentiality of the data. All PHI was stored on the secure VHA portal, behind the VA firewall, and only the researcher and co-investigator had access. Once the dataset was complete all PHI was removed and the dataset was de-identified.

**Client selection.** Participants in the current study were Veterans of the United States military who have sought mental health services from the VHA. All participants were 18 years of age or older. First, a request for a cohort of potential participants was submitted through the VA Informatics and Computing Infrastructure (VINCI). The cohort was limited to Veterans charts which contained a diagnosis of PTSD (F43.10 or F43.12) and six or more incidents of the billing code for individual therapy (CPT code 90834 and/or 90837) in a three month period between the years 2014-2017. This returned a cohort list of 453,568 Veterans charts which met these criteria. Due to human errors in data entry, not all of the social security numbers contained within this initial potential participant pool were complete. Once these incomplete identifiers were eliminated, 2,000 of the initial cohort were chosen at random using a script designed for that purpose in SQL.

Once those identified cases were transferred into Microsoft Excel, a column of random numbers was created, and the cases were sorted into a random order to begin chart review. Veteran's must have either completed all 12 recommended sessions of CPT, or have been designated an "early completer" of the protocol and have completed the PCL-5 post-treatment assessments. An "early completer" is a client who has decreased their outcome measurement score below the threshold for a PTSD diagnosis (31 out of 80), and the termination from

treatment is planned.

**Power analysis.** Using G\*Power, an a priori power analysis indicated that an estimated 53-77 person participant sample pool would be the appropriate sample size in order to identify a large effect size (using Cohen et al., 2013's conventions) for a one-tailed multiple regression design at  $p < 0.05$  (actual power .95 & .98 respectively). This sample size should allow for the sensitivity necessary to detect variance in final scores on the PCL-5. Data from 55 Veteran's charts were collected for the purposes of analysis.

**Data collection.** Once the potential client charts eligible for review had been narrowed to the IRB approved quantity (2000), a step-wise rule-in/rule-out process was adopted for the data collection. A client's chart was opened, and evaluated for the following components: 12 CPT notes utilizing the national templates, PCL-5 scores recorded in at least the first and final sessions of CPT, and at least one progress note or intake containing background information. If all of these items were present, data was collected from the chart. If these items were not present, no data was recorded from that particular chart, other than the reason for exclusion. Some of the most common reasons for exclusion from data collection were: the participant had not completed the CPT protocol, the therapist had not recorded PCL-5 scores, or the participant had completed another type of therapy utilizing the same billing code.

A database was created in Microsoft Excel using information from the Veteran's medical chart and progress notes pertaining to their course of CPT treatment. The following data was collected from the client's charts: total responses on the PHQ-9, date of birth, sex, race, military era served (i.e. from WWII to OEF/OIF/OND), presence of service-connected disability, and whether receiving compensation for PTSD, total scores on the PHQ-9, total scores on the PCL-5, level of education, branch of service, whether Veteran had war-zone duty, total number of

sessions attended, the beginning date of treatment, the end date of treatment, the name of the therapist providing treatment, time since trauma, number of combat tours, employment status, treatment setting, presence or absence of identified CPT session elements. Each piece of data listed above was collected as its own variable (or column) in the Excel file, and dummy coding was used where applicable. A detailed codebook was kept throughout the process to ensure accuracy.

When collecting data from the individual CPT progress notes, dummy coding was required to indicate the presence or absence of an identified element of CPT (coded “1” or “0”). When completing a national CPT template within the VHA EMR system, clinicians are required to “check” the items they have completed in a session. Those checked items are the only lines of text to appear in the formatted portion of a note. The elements which are missing, and subsequently coded a “0” for the purposes of this study, are things which were prescribed but not included in that particular session. Prior to data collection the VHA national CPT templates were compared with the adherence checklists recommended for use by the creators of CPT (Macdonald et al., 2014). Each essential and unique element, as well as essential but not unique elements, became variables in the dataset whenever possible. It is important to note, not all of the session elements identified in the manual are included in the VHA national progress note template.

## **Participants**

**Demographics.** Demographic information and descriptive statistics for the current sample are located below in Table 1. 74.5 percent of the clients were male. The mean age (*SD*) was 51.05 (13.14), and the Veterans were evenly distributed across two service eras: WWII–post-Vietnam (51%) and Persian Gulf–Present (49%). The sample was 45.5 percent

White, 41.8 percent African American, and 5.5 percent Hispanic/Latinx. The mean PCL-5 pre-treatment score (*SD*) was 58.76 (11.36) and mean PHQ-9 pre-treatment score (*SD*) was 16.27 (6.08). Four out of five clients in the sample were service connected, and the mean percentage of service connection (*SD*) was 54.91 (35.69) for those who had service connections. Veterans in the sample received CPT treatment from a total of 31 providers from 24 sites across 15 states. The mean number of clients in the sample per provider was 1.77.

Table 1. Demographics of sample and descriptive statistics (*N* = 55)

Variable	<i>N</i>	%	<i>M</i>	<i>SD</i>
<b>Sex</b>				
Men	41	74.5		
Women	14	25.5		
Age (years)			51.05	13.14
<b>Race/ethnicity</b>				
White	25	45.5		
African American	23	41.8		
Hispanic	3	5.5		
Asian or Pacific Islander	0	0		
American Indian or Alaska Native	1	1.8		
Unknown or Declined	3	5.4		
<b>Service connection status</b>				
Service Connected	44	80		
Not Service Connected	11	20		
Service Connection Percentage			54.91	35.69
<b>Service era</b>				
WWII–post-Vietnam	28	51		
Persian Gulf–Present	27	49.1		
Initial Total PCL Score			58.76	11.36
Initial Total PHQ Score			16.27	6.08
Total Number of Providers	31			
Number of Clients per Provider			1.77	
<b>Treatment Location (<i>number of sites</i>)</b>				
Hawaii (1 location)	1	1.8		
Georgia (1 location)	3	5.5		
New York (2 locations)	5	9.1		
Massachusetts (1 location)	1	1.8		

Florida (2 locations)	2	3.6
North Carolina (1 location)	1	1.8
Arizona (2 locations)	4	7.3
Ohio (3 locations)	23	43.6
Rhode Island (1 location)	1	1.8
Mississippi (2 locations)	3	5.5
Michigan (1 location)	1	1.8
California (1 location)	1	1.8
Alabama (2 locations)	4	7.3
Indiana (1 location)	2	3.6
Illinois (3 locations)	3	3.6

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### Dependent Variables

**PTSD checklist for DSM-5.** The PCL-5 was developed to assess symptoms of PTSD consistent with the criteria required for diagnosis in the DSM-5 (see Appendix A). Re-experiencing symptoms are captured with items such as; “repeated, disturbing dreams of the stressful experience,” while arousal symptoms are assessed with an item such as, “feeling jumpy or easily startled” (Blevins et al., 2015). The PCL-5 consists of 20 items which utilize a five-point, Likert-type scale (0 = not at all, 4 = extremely). Scores on this measure range from zero to 80, with higher scores indicating increased distress.

Blevins et al. (2015) updated the existing PTSD checklist for DSM-IV to remain consistent with the diagnostic criteria for PTSD put forth in DSM-5. They established initial psychometric properties of the PCL-5 using two samples. The first was made up of students who had been exposed to “a very stressful life event” (N = 278) and the second consisted of undergraduate students (N = 1,158) who had not necessarily been impacted by a traumatic event. Participants completed the PCL-5 along with a battery of existing valid and reliable assessments. Researchers used Cronbach’s Alpha to assess internal consistency, which revealed reliability of the new measure was excellent within their samples ( $\alpha = .94$  &  $\alpha = .95$ ) respectively. Blevins et al. (2015) administered additional PTSD assessments including the PCL for DSM-IV,

Posttraumatic Diagnostic Scale (PDS), and the Detailed Assessment of Posttraumatic Stress (DAPS). Correlations between these measures and the PCL-5 demonstrated convergent validity ( $r = .84-.85$ , all  $p < .01$ ).

Blevins et al. (2015) established discriminant validity by comparing participants' scores on the PCL-5 to those of subscales of the Personality Assessment Inventory (PAI). Results indicated that the PCL-5 was positively correlated with the construct of depression in the current sample ( $r = .60$ ). As expected, correlations with theoretically unrelated constructs such as antisocial personality features and mania were low ( $r = .39$ ,  $r = .31$ ). Wortmann et al. (2016) investigated the generalizability of the results of Blevins et al. (2015) using a sample of active duty and recently retired military service members ( $N = 912$ ).

**Patient Health Questionnaire–9.** The Patient Health Questionnaire–9 (PHQ-9) is also recommended for weekly administration during CPT to assess for changes in self-reported symptoms consistent with depression (Resick et al., 2014). This measure consists of nine questions, and utilizes a four-point Likert-type response scale (0 = not at all, 3 = nearly every day). Scores on the PHQ-9 can range from zero to 27, with higher scores representing higher levels of depression (see Appendix B; Kroenke & Spitzer, 2002).

The PHQ-9 was developed for use as a screening tool for depression. Kroenke et al. (2001) established initial reliability and validity for this measure of depression severity. In a study of clients in outpatient settings ( $N = 6,000$ ) both the internal consistency reliability ( $\alpha = .86$  &  $.89$ ) and test-retest reliability ( $\alpha = .84$ ) were excellent. Huang et al. (2006) assessed the reliability for the PHQ-9 use with racially and ethnically diverse clients. They administered the scale to a diverse group of clients ( $N = 5,053$ ) and found the internal consistency to be excellent ( $\alpha = .79-.89$  when separated by racial/ethnic groups), and consistent with the psychometrics

reported in earlier studies.

The PHQ-9 was originally developed as a diagnostic screening tool for symptoms consistent with depression. Lowe et al. (2004) assessed the PHQ-9's appropriateness for use as a research outcome measure. Clients with no symptoms of depression, symptoms consistent with unspecified depressive disorder, and Major Depressive Disorder were recruited for participation in the study. The Structured Clinical Interview for DSM-IV was administered as a pre- and post-measure to demonstrate convergent validity and determine the presence of absence of depressive symptoms meeting criteria for diagnosis. Lowe et al. (2004) found that the PHQ-9, when administered as a pre- and post-measure, was able to detect changes in symptoms over time. Further, in the group of participants which experienced decreases in depression levels, the effect sizes for the PHQ-9 change scores were large ( $N = 52$ ;  $ES = -1.33$ ). In the two groups where the symptoms of depression either remained stable or worsened the effect sizes were  $ES = -.021$  ( $N=91$ ) and  $ES = 0.47$  ( $N = 24$ ) respectively.

Criterion validity was established by comparing scores on the PHQ-9 to depression diagnostic status following an intake with a therapist. Results of a ROC curve analysis indicated the PHQ-9 demonstrated both sensitivity and specificity in differentiating between clients with and without depression meeting diagnostic criteria. Martin, Rief, Klaiberg, and Braehler (2006) sought to establish validity for the PHQ-9 in a general population sample. They recruited a sample of 2066 participants who completed the PHQ-9, the General Health Questionnaire-12 (GHQ-12) which measures "severity of psychological disturbance" and Brief-Beck Depression Inventory (BDI). Results indicated scores on the PHQ-9 are highly correlated with scores on the brief BDI ( $r = .73$ ) as well as scores on the GHQ-12 ( $r = .59$ ).

## **Data Analysis**

**Question I.** Is there a statistically significant difference in self-reported symptoms of PTSD, as measured by change scores on the PCL-5 between the beginning and completion of CPT in this sample? To answer this question, a dependent samples t-test was used to determine if the change in PTSD symptoms from the beginning to end of treatment as measured by scores on the PCL-5 were statistically significant.

**Question II.** Is there a statistically significant difference in self-reported symptoms of depression, as measured by change scores on the PHQ-9 between the beginning and completion of CPT in this sample? To answer this question, a dependent samples t-test was conducted to determine if the change in depression symptoms between the first and final sessions of CPT were significantly significant.

**Question III.** Does the percentage of overall therapist adherence to the session elements of the CPT protocol predict final score on the PCL-5 in this sample? A simultaneous multiple regression was conducted to investigate the relationship between overall therapist adherence to the session elements of CPT, and final scores on the PCL-5.

**Question IV.** Does the presence of each designated 'essential and unique' or 'essential but not unique' element of CPT predict PTSD symptoms assessed by the PCL-5? A simultaneous multiple regression was conducted in order to examine the directionality of the relationship therapist adherence and client outcomes, and what amount of variance in outcome is accounted for by each session element.

**Question V.** Does the percentage of overall therapist adherence to the session elements of the CPT protocol predict final score on the PHQ-9 in this sample? A simultaneous multiple regression was utilized to examine the relationship between overall therapist adherence to the session elements of CPT and final scores on the PHQ-9.

**Question VI.** Is the presence of absence of each designated ‘essential and unique’ or ‘essential but not unique’ element of CPT related to depression symptoms assessed by the PHQ-9? A simultaneous multiple regression was utilized to investigate the relationship between each of the elements of the CPT protocol and participants’ final scores on the PHQ-9.

## **Chapter IV**

### **Results**

The present study was designed to examine the relationship between therapist overall adherence CPT session elements, as well as to critical elements designated as unique and essential to the protocol, and client treatment outcome. The following chapter describes the procedures used to analyze the data, provides information about client demographics, descriptive statistics, and results of multiple regressions performed to answer the research questions. These results are organized based upon the study's research questions.

#### **Descriptive Analyses**

The VHA national templates for CPT progress notes contain 77 identifiable treatment elements across the 12 sessions which correspond with critical session elements identified by Macdonald et al. (2014). Clinicians are asked to “check” the elements which have been included in the session, and leave blank those which have not (see Appendix C for CPT progress note templates). Among these, there are 25 seen as essential but not unique and 52 essential and unique (see Table 2 for the distribution of these elements across sessions).

The presence or absence of each of the 77 elements was recorded with a “1” or a “0.” This resulted in a score of 0-77 for overall adherence for each participant. A therapist overall adherence rate for each client was calculated by using this total score dividing by the number of elements possible (77). The result was that therapists in this sample adhered to the CPT protocol at a rate of 94.92%, meaning the participants of the study received approximately 95% of the total CPT treatment elements on average. The presence of proscribed elements in any session was also recorded with a “1” or a “0.” The pattern of overall presence of proscribed elements within this sample was examined and is graphically represented below (see Figure 1). 12.7 % (n

= 7) of the participants in this sample had a proscribed element recorded in their chart. Session two had the second highest rate of proscribed elements with 9.1% (n = 5) recorded.

Table 2. Distribution of CPT session elements.

Session	Number of elements identified within session	
	Unique and Essential	Essential, but not Unique
Session 1	2	3
Session 2	5	2
Session 3	4	2
Session 4	4	2
Session 5	5	2
Session 6	3	2
Session 7	4	2
Session 8	5	2
Session 9	5	2
Session 10	5	2
Session 11	5	2
Session 12	5	2

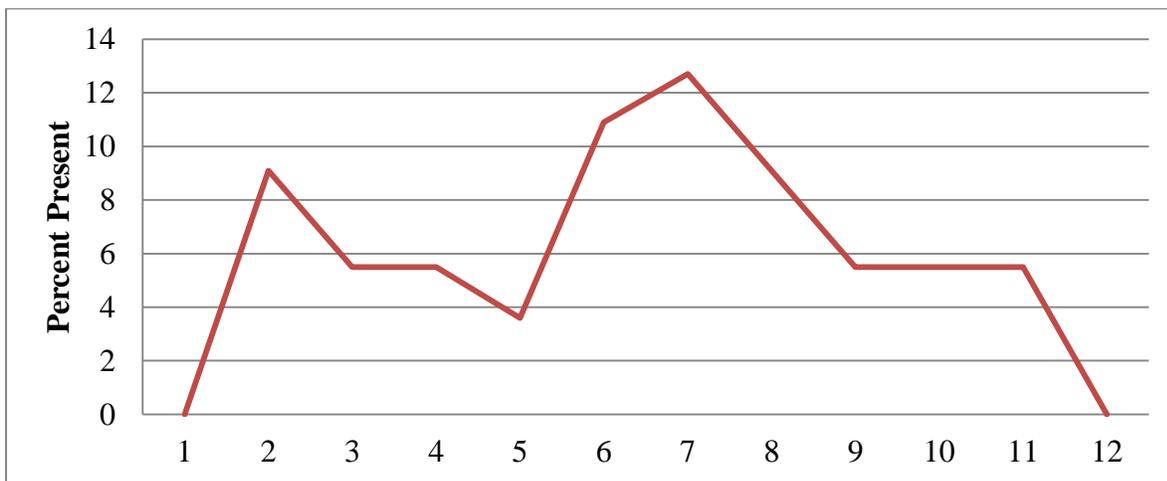


Figure 1. Percentage of participants with proscribed elements present by session.

To describe the participants' experience of CPT treatment in terms of the pattern of therapists' adherence to CPT treatment protocols, per session adherence rates were calculated to

show the degree to which the client received the prescribed elements (the actual number of elements present in a session divided by the total number of prescribed elements for the session).

Figure 2 illustrates the pattern of stability of therapist adherence to the prescribed session elements of the CPT protocol. It seems that therapist adherence rate is generally high, although it fluctuates across 12 sessions somewhat.

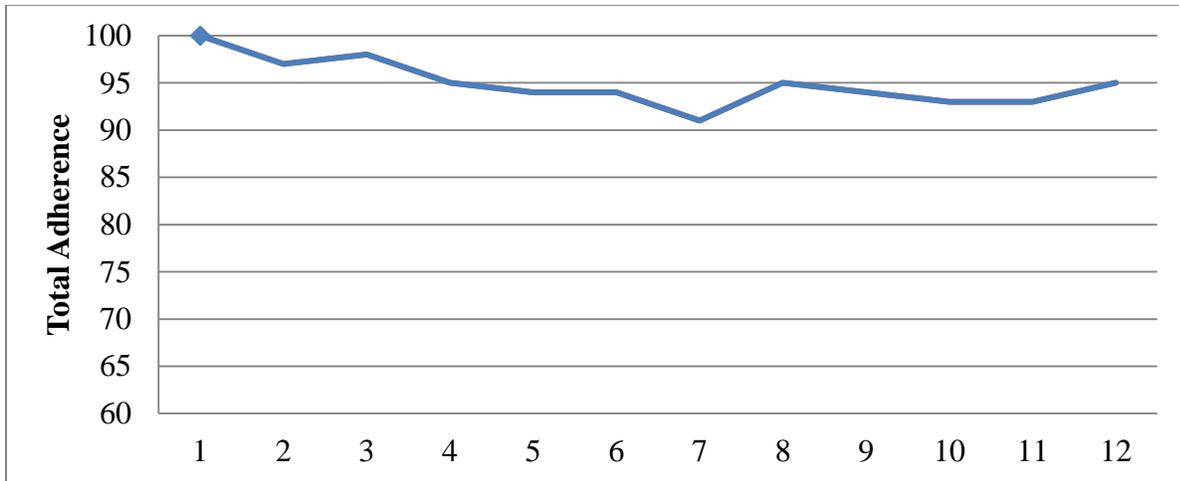


Figure 2. Percentage of overall therapist adherence to prescribed CPT elements by session.

When examining only the 52 session elements designated essential and unique to CPT (see Table 2), the overall rate of adherence to these session elements was 84.25%. Using the same method as for all session elements above, the therapist adherence rates for CPT prescribed elements that are deemed essential and unique across sessions were calculated (the actual number of essential and unique elements present divided by the possible number of essential and unique elements). Figure 3 illustrates the pattern of stability of therapist adherence to the prescribed session elements designated essential and unique to the CPT protocol. It appears therapist adherence to the prescribed elements designated essential and unique is not as high as it was when all 77 elements were considered. Further, there is a downward slope present in the graphical representation of the data, indicating adherence to the protocol may wane over time.

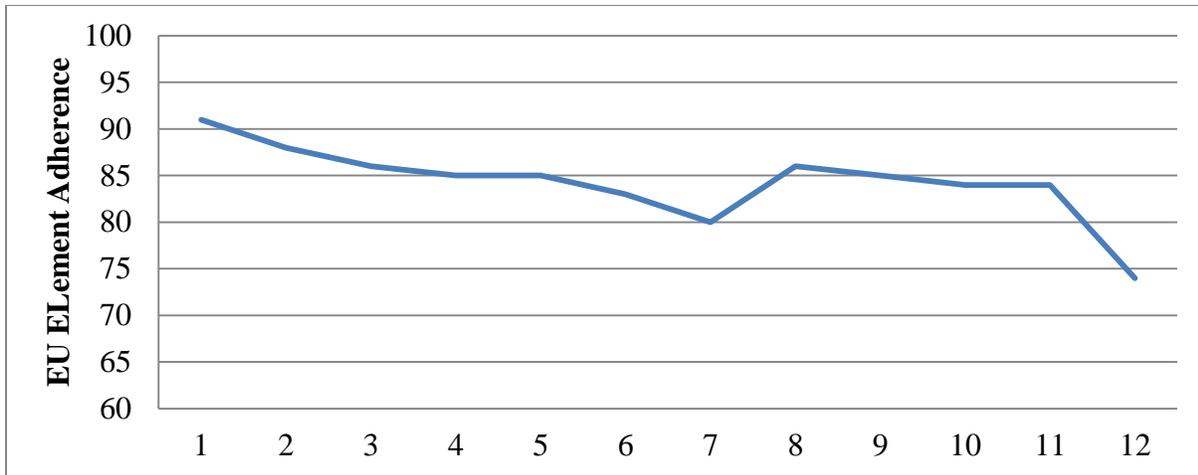


Figure 3. Percentage of therapist adherence to essential and unique CPT elements by session.

To prepare for the analysis to answer the research questions concerning the relationship between therapist’s overall adherence and client treatment outcome, an index of overall adherence was calculated. Specifically, out of the 77 variables which represented the individual session elements of CPT, the number of elements present across the 12 sessions was used as the numerator and divided by 77 to create the overall adherence index. This index was used in the regression analyses conducted.

To capture the presence of session elements which are prescribed in multiple session of CPT, a cross session composite score for each such element was calculated. In each session of CPT the client is asked to complete a practice assignment between sessions. The “practice assignment” session element is designated essential and unique, and the composite presence score for this element was created by summing the number of times the element present from each of the 12 sessions, with scores ranging from 0-12. Thus the score range is 0-12. Similarly in sessions 2-12 the therapist is expected to review the completed practice assignment from the previous week with the client. This session element is designated essential and unique, and a composite score was created by summing the number of times present from each of the 11

sessions, with scores ranging from 0-11. Similarly, assessing the client's attitude toward therapy is an element designated as essential but not unique in each of the 12 sessions. These too were summed to create a composite score reflecting the times it is present in all 12 sessions with scores ranging is 0-12. Finally, assessing barriers to attending therapy and assisting with problem-solving any barriers reported is an element designated essential but not unique in each of the CPT sessions. The composite presence score was calculated by summing up its presence score in all 12 sessions with scores ranging from 0-12. These presence composite scores were utilized as predictor variables in regression analyses for research questions four and six.

### **Question I**

The first research question addressed the pre- and post-treatment differences in PTSD symptoms as reported by clients on the PCL-5. This was examined using a paired samples *t*-test comparing the total PCL-5 scores from the first and final sessions of CPT treatment. As predicted, symptoms of PTSD, as measured by scores on the PCL-5, were significantly lower at the end of CPT, ( $M = 35.67$ ,  $SD = 18.57$ ) than at the beginning of treatment ( $M = 58.76$ ,  $SD = 11.36$ ),  $t(54) = 9.65$ ,  $p < .01$ ,  $d = 1.30$ . This is considered a large effect size according to Cohen's conventions for the behavioral sciences (Cohen et al., 2013). Scores on the PCL-5 decreased an average of 23.09 points (scores range from 0-80), or approximately 1.92 points per session of the CPT protocol. Decreases of five points on this measure have been shown to be clinically significant (Wortmann et al., 2016)

### **Question II**

The second research question addressed the comorbid symptoms of depression that often accompany a diagnosis of PTSD. Hypothesis II stated pre- and post-test scores on the PHQ-9 would be significantly different, demonstrating significant reduction in reported symptoms of

depression. This was examined using a paired samples t-test comparing the total PHQ-9 scores from the first and final sessions of CPT treatment. Consistent with the hypothesized result, symptoms of depression, as measured by total score on the PHQ-9, were significantly lower at the end of CPT, ( $M = 10.87$ ,  $SD = 5.63$ ) than at the beginning of treatment ( $M = 16.47$ ,  $SD = 6.10$ ),  $t(46) = 5.48$ ,  $p < .001$ ,  $d = .80$ . Cohen et al. (2013) would classify this as a large effect size. Scores on the PHQ-9 decreased an average of 5.60 points (scores range from 0-27) between the pre-and post-test administrations of the measure.

### **Question III**

Research question three called for an examination of the relationship between the overall adherence rate to the elements in the 12 sessions of the CPT protocol and treatment outcome as measured by final scores on the PCL-5. A simultaneous multiple regression was conducted to investigate this relationship. The PCL-5 score was used as the criterion variable and the overall percentage of adherence to the CPT protocol a predictor variable, while controlling for pre-treatment scores on the PCL-5. The overall regression was statistically significant and accounted for 19% of the variance in final PCL-5 scores ( $R^2 = .19$ ,  $F[2, 52] = 6.01$ ,  $p < .01$ ). However, the percentage of adherence to the CPT protocol was not a significant predictor of final PCL-5 score in this sample ( $p = .09$ ). The data in this sample do not support the original hypothesis that increased overall adherence to the CPT protocol will account for a significant portion of the variance in final PCL-5 scores.

**Question IV.** Research question four explored if the presence of each of the individual session elements of CPT predict treatment outcome as assessed by final PCL-5 scores. A simultaneous multiple regression was utilized to investigate this relationship. The PCL-5 scores from the final session were used as the criterion variable and all individual elements were

included as predictor variables, except for elements present in multiple sessions for which the calculated composite scores were used. The analysis controlled for pre-treatment PCL-5 scores by entering such scores with all other variables (session elements). The overall regression was statistically significant and the optimal linear combination of the predictor variables accounted for 76% of the variance in final PCL-5 scores ( $R^2 = .76$ ,  $F [29, 25] = 2.80$ ,  $p < .01$ ). In this regression model, six of the 34 CPT elements predicted a statistically significant portion of the total variance in participants' final CPT scores, when controlling for pre-treatment PCL-5 scores.

The composite score for practice assignments (homework) was statistically significant in this regression model, and resulted in a large effect ( $\beta = -1.05$ ). When all other predictors in the regression were controlled for, a one standard deviation (*SD*) increase in presence of the essential and unique repeated practice assignment elements, resulted in a 1.05 *SD* decrease in PCL-5 scores at the end of treatment ( $\beta = -1.05$ ,  $t [25] = -2.34$ ,  $p < .05$ ; 95% CI [-34.40, -2.21],  $b = -18.31$ ). Due to a lack of variability in adherence to the essential and unique treatment elements: discussing treatment concerns, introducing the trauma account assignment, introducing the Challenging Beliefs Worksheet, introducing the intimacy module, and reviewing stuck points related to intimacy, the following results from the regression analysis should be interpreted with caution. With pre-treatment PCL-5 scores being controlled for, the essential and unique treatment elements showed large effects on participants' final PCL-5 scores with standardized regression coefficients ( $\beta$ ) of .64, .67, .41, 1.01, and -.65 respectively (Cohen et al., 2013).

In sum, there were several individual CPT session elements that accounted for a statistically significant portion of variance in treatment outcome. However, for the current sample, therapist delivery of certain elements appeared to increase client score on the post-treatment PCL-5. Two elements, discussing intimacy related stuck points, and the composite

score of total practice assignments given, were associated with decreased post-treatment symptoms. These results are further discussed in the next chapter.

**Question V.** Does overall therapist adherence to the session elements of the CPT protocol predict after treatment depression as assessed by the PHQ-9 in this sample? A simultaneous multiple regression was conducted to investigate the relationship between therapist overall adherence to the CPT protocol and client outcomes on a measure of depression (PHQ-9). The overall regression was not statistically significant ( $R^2 = .09$ ,  $F [2, 44] = 2.14$ ,  $p = .13$ ).

**Question VI.** Is the presence of absence of each designated ‘essential and unique’ or ‘essential but not unique’ element of CPT related to depression symptoms assessed by the PHQ-9? A simultaneous multiple regression was conducted to examine this relationship. The overall regression was not significant and the model did not account for a significant portion of the variance in final PHQ-9 scores, ( $R^2 = .60$ ,  $F [27, 19] = 1.06$ ,  $p = .45$ ).

## **Chapter V**

### **Discussion**

This chapter offers a summary and interpretation of the main findings of this study, provided with contextual information from the CPT effectiveness and therapist adherence literature. The chapter will also include a discussion of how these results fit into current and future CPT research, as well as the possible implications for clinical practice. Finally, the limitations of this study and future directions for research are discussed.

#### **Summary of the Findings**

The current study had two overarching goals: to assess the rates of overall therapist adherence to the CPT protocol, and to investigate the relationship between CPT protocol adherence and client outcome. This was attempted using a retrospective chart review of VHA clients who have completed CPT, and gathering information from CPT progress notes (adherence data), and primary and secondary outcome measurements (PCL-5 & PHQ-9). Overall adherence rate and adherence to individual elements of CPT were distinctly evaluated, as were CPT outcomes for the current sample in comparison to previous research. Both the process of evaluating client records for inclusion in the study and the results of the data analyzed provide an initial sketch of post-training CPT treatment adherence within the VA. More importantly through the evaluation of the relationship between CPT treatment adherence and outcome among the current sample shed light on the importance of continued treatment adherence due to the demonstrated impact on client outcomes.

**Question I.** It was predicted that completion of CPT would result in significantly reduced symptoms of PTSD as assessed by final scores on the PCL-5. As predicted, this hypothesis was confirmed. The results indicated that on average participants experienced a statistically

significant reduction in PTSD symptoms by the final session of CPT. Scores on the PCL-5 decreased at a rate of approximately 1.92 points per session of the CPT protocol. On average, this resulted in a decrease of 23.09 points across the participants. It is important to note a decrease of five points is considered a positive response to PTSD treatment (Wortmann et al., 2016), while a decrease of ten points indicates a clinically significant reduction in symptoms (National Center for PTSD, 2014). Participants in this sample appear to have experienced a clinically significant reduction in symptoms, with 47.3 percent of the participant's scores falling below the suggested threshold score of 33 for meeting initial diagnostic criteria for PTSD.

The reduction in PTSD symptoms can be further described in terms of effect size. When considering the decrease in final PCL-5 scores among the participants the effect size is considered large (Cohen et al., 2013). This large effect size ( $d = 1.30$ ) is consistent with findings from other CPT research (Chard, 2005; Resick, et al., 2008; Suris et al., 2013). Recall the PCL-5 is a self-report measure wherein the respondent is asked to rate the frequency in which they experience 20 symptoms consistent with PTSD on a Likert-type scale ranging from zero (not at all) to four (extremely). A decrease in total PCL-5 scores indicates the Veterans have experienced both an improvement in PTSD symptoms overall, as well as experiencing the remaining symptoms less frequently.

**Question II.** It was predicted that completion of CPT would result in significantly reduced symptoms of depression as assessed by final scores on the PHQ-9. As predicted, this hypothesis was confirmed. The results indicated that on average participants experienced a statistically significant reduction in depression symptoms by the final session of CPT. Scores on the PHQ-9 decreased, on average, 5.60 points from the beginning to end of treatment. As previously discussed the PHQ-9 is a screening tool developed for the measurement of depression

symptom frequency and severity for use in both clinical and research settings. Scores on the measure range from 0-27, with higher scores indicating greater severity of depression. In this sample, average scores on the PHQ-9 at the beginning of the CPT protocol (16.35) fell in the range designated ‘moderately severe depression’ (15-19; Kroenke & Spitzer, 2002). Conversely, at the conclusion of CPT, participants’ scores had decreased to an average of 10.87. This post-treatment score indicates participants experienced a clinically significant reduction in symptoms of depression, with the average score in the lowest end of the ‘moderate depression’ range.

**Question III.** It was predicted that increased therapist overall adherence to the session elements of the CPT protocol would lead to lower final session scores on the PCL-5. The data in this sample do not support the original hypothesis as no statistically significant relationship was found between final PCL-5 scores and therapist overall adherence rate to the session elements of CPT. It should be noted that though overall adherence was not found to be a significant predictor of outcome in this sample, an overwhelming majority of the CPT literature tells us, as does the efficacy outcomes from this sample, that CPT is an effective evidence-based treatment for PTSD. Additionally, the overall therapist adherence rate for this sample was 94.92%. This may not provide enough variance in adherence to the protocol to effectively predict variance in PCL-5 scores. Further, it is likely that adherence to the protocol alone, cannot explain the total variance in outcome measurement scores. As previously mentioned, the overall adherence rate was approximately 95%, leaving little room for improvement. It is clear there are unaccounted for variables having a potentially moderating effect on the impact of therapist adherence to a treatment which has been repeatedly demonstrated as robust.

**Question IV.** This research question did not have a hypothesis due to its’ exploratory nature. No existing studies could be located which examined the relationship between CPT’s

session elements and treatment outcome. The published outcome literature has largely focused on RCT's to demonstrate efficacy, dismantling studies to determine necessity of the trauma account, and effectiveness studies to add generalizability to the research base. These studies utilize therapist adherence to the protocol as a validity check during the experiment (Forbes et al., 2012; Monson et al., 2006; Schnurr et al., 2007), but no analysis of the impact of individual sessions or session elements appear to have been completed.

The composite variable created to represent therapist's adherence to giving practice homework in each session predicted a significant portion of variance in the outcome measure for CPT. This finding is consistent with the message from many cognitive-behavioral based therapeutic interventions which emphasizes the importance of practice assignments in psychotherapy. The practice assignments for CPT include reviewing handouts, completing one worksheet per day corresponding to the newest skill learned in session (e.g. ABC worksheet, CBW), and reading about each of the topical modules for the final five sessions. The content of each of these practice assignments is unique to CPT. Whether it is the content of the practice assignments that make them so impactful, or the act of asking the client to be engaged in their treatment outside of session is unknown. Unfortunately, there is not a way to reliably track completion of session assignments within the current VHA templates. It is possible this composite variable is capturing variance more accurately accounted for by completion of practice assignments, rather than therapist adherence to the act of assigning them.

Though other statistically significant predictors of overall outcome were found, such as discussing treatment concerns, introducing the trauma account assignment, introducing the Challenging Beliefs Worksheet, introducing the intimacy module, and reviewing stuck points related to intimacy, discussing them at length may be premature due to the lack of variance in

rates of adherence by therapists in the current sample. The rate of adherence was higher than that recorded in the literature, and would more accurately reflect the population given a larger sample size.

**Question V.** It was predicted that increased therapist overall adherence to the session elements of the CPT protocol would lead to lower final session scores on the PHQ-9. The data in this sample did not support this hypothesis, as no statistically significant relationship was found between final PHQ-9 scores and therapist overall adherence rate to the session elements of CPT. One possible explanation for this nonsignificant result is the relevant sample size for this question. Though the sample size for the overall study ( $N = 55$ ) was sufficient for the number of independent variables, the participants with PHQ-9 scores were less ( $n = 47$ ). Blevins et al. (2015) found that the PCL-5 correlated highly with depression symptoms as measured by the PAI ( $r = .60$ ). Within this sample, approximately 78% of participants were diagnosed with a depression-related disorder at the time of their CPT episode of care. In light of the significant decrease in depression symptoms as measured by the PHQ-9 between the beginning and end of treatment, and the aforementioned sample size concerns, it seems possible that with a larger sample, a significant relationship between adherence and depression symptoms could be detected.

It is possible, however, the decrease in depressive symptoms over the course of CPT is not directly related to strict adherence to the elements of CPT. An alternative explanation for these unexpected results could relate to the overlap in the measurement of depression and PTSD symptoms on the PCL-5 and PHQ-9. Symptoms such as anhedonia, difficulty concentrating, and trouble falling or staying asleep appear on both self-report measures. These items account for between 0-12 points out of a possible 27 on the PHQ-9, and 0-12 out of a possible 80 on the

PCL-5. The item “feeling bad about yourself, or that you are a failure or have let yourself or your family down” on the PHQ-9 is quite similar to the PCL-5’s “having strong negative beliefs about yourself, other people, or the world” depending on the interpretation of the individual completing the measure. With the current samples’ average change score on the PHQ-9 being 5.60, it appears reasonable to assert the decrease in PHQ-9 score could be a result of an overall decrease in PTSD symptoms which overlap with depression symptoms. This overlap in symptom measurement, and potential conflation of PHQ-9 and PCL-5 scores, may help explain why symptoms of depression decreased significantly for the current sample, yet did not have a significant relationship to overall adherence to CPT.

**Question VI.** This question did not have a hypothesis due to its’ exploratory nature. No existing literature could be found examining the relationship between the session elements of CPT and secondary outcome measurements of PTSD treatment such as the PHQ-9. The overall regression conducted to answer this research question was not statistically significant. It is important to note the sample size for participants with PHQ-9 data in their chart (n = 47) was below the size recommended by the power analysis results and may have impacted the ability of the regression model to predict final scores.

A possible explanation for this result is the decrease in symptoms of depression as measured by the PHQ-9 is not directly related to the specific session elements of CPT. Rather, it may be a by-product of CPT’s theoretical grounding in CBT, a gold-standard treatment for depression related diagnoses. Over the course of CPT, clients are asked to identify stuck points (cognitive distortions) and create alternative thoughts to challenge them. This technique, though focused on thoughts related to beliefs created as a result of the trauma, could be easily generalizable to any negative self-talk or core belief related to a client’s symptoms of depression.

Further, avoidance symptoms, including isolative behaviors to avoid PTSD triggers, are typically reduced as a result of evidence-based PTSD treatment. It is logical to assert that this would increase a client's activity level, thus mirroring behavioral activation techniques used in CBT for depression. Therefore, the decrease in depression symptoms on the PHQ-9 would not necessarily relate directly back to specific session elements of CPT.

### **Limitations**

Overall, the variance in adherence to session elements was restricted in range in the current sample. This likely indicates that if significant change were to be due to the adherence to a specific session element, or set of elements, that change would be difficult to detect within these data. A larger sample size may remedy this issue however, it is possible a single element is not a substantial enough portion of a session to significantly impact overall outcome from CPT. A future line of research could involve the creation of additional composite scores, combining like elements across sessions to increase the degrees of freedom for analysis. For instance, the elements introducing the trauma account assignment, introducing the Challenging Beliefs Worksheet, and introducing the intimacy module, all involve a component of the therapist introducing a new concept within CPT and interacting with the client to ensure understanding. It could be argued all psychoeducational components of CPT could be combined to create a single composite variable. However, for this specific variable, it may be important to examine the covariance between such a composite variable and measured therapeutic rapport.

**Internal validity.** The current study is an effectiveness study, utilizing a retrospective chart review for data collection. A main limitation of this study is the lack of an experimental design which would have been used to maximize internal validity by controlling for many confounding variables. Though random selection was utilized to narrow the participant cohort

from 453,568 to the IRB approved pool of 2,000, the clients whose data make up the final data set were not a product of true random selection. Not all charts in the pool of 2,000 were reviewed, and as stated in IRB application and approval documentation, data collection ceased when the required sample size had been collected. Random selection from the total would have been required in order to control for selection bias and maturation effects.

**External validity.** While internal validity is certainly a limitation of an effectiveness study, external validity is typically considered a strength of this study design. Utilizing a retrospective chart review for data collection allows for the results to be representative of Veterans seeking services from VHA clinics in real-world circumstances. However, there are limitations due to the current study's sample size and non-random participant selection methods which limit the generalizability of the findings. This sample is not representative of the demographics of the Veteran population as a whole. For example, White and Black/African-American Veterans are nearly equally represented, but Veterans of all other races or ethnicities are underrepresented. 43.60 percent of the total sample sought treatment in three VHA locations in the state of Ohio, while many states are not represented at all in the sample. Further, the sample of therapists (N = 31) is not large enough to generalize the overall, or specific element, adherence rates to all CPT trained therapists in the VHA system.

Additionally, this study looked only at clients who completed a full 12-week course of CPT in order to have consistent data across all variables. Limiting collection to only CPT completers would have eliminated data from the estimated 18% of clients who drop out of trauma-focused therapies prior to completion (Imel, Laska, Jakcupcak, & Simpson, 2013). Future research may look at all clients who begin CPT, regardless of completion status, to determine if some portion of the dropout rate can be explained by variables recorded in the VHA CPT

templates.

**Unaccounted for variables.** Unaccounted for variables are also likely influential limitations of this study. Due to the focus of and resources available for the current study, there were many variables that were not included in the current research. Some of these include therapist differences (such as training level), treatment facility, and therapists' treatment allegiance. Client-level variables that were not accounted for include age, diagnosis or diagnoses, service era, pharmacotherapy, homework adherence, motivational factors, and percent of service connection. Each of these suggested variables could have reasonably contributed unique variance to clients' post-treatment PCL-5 scores. Of note, data on several client variables including age, diagnosis, service era, and service connection were gathered and could therefore be used in subsequent studies. Primary and secondary outcome variable data from each session of CPT has previously been a variable of interest in other CPT efficacy and effectiveness studies, and would be a positive addition to a regression model assessing predictors of CPT treatment outcomes.

Additionally, though the primary and secondary outcome measures for the current study are consistent with those used throughout the CPT efficacy and effectiveness literature, they do not provide a total picture of treatment outcome. Clients could be experiencing positive impact from CPT in ways that are not measured best by self-report symptom checklists (e.g. PHQ-9 & PCL-5), but perhaps through a structured clinical interview, or collateral interviews with close family or friends. Future research in this area could also include the subtest scores of the PCL-5. These four subtest scores load onto the four previously discussed criterion categories of PTSD symptoms and may provide more meaningful information related to which domains of symptoms have decreased during CPT. Any conclusions drawn from this study should be limited to a scope

appropriate to the sample obtained and type of outcome measurement available.

**Testing effects and use of self-report data.** One of the limitations of this study, and any other study of this kind, is that data about which prescribed elements were included in each session is subject to the self-report bias of the therapist. It is possible that therapists endorse items that were not included in a given session due to habit, social desirability (they want to ensure their notes look correct), or other reasons. Because the current study was done using retrospective data, social desirability measures could not be added to control for such an effect. Additionally, both client outcome measures used (PHQ-9 and PCL-5) were also self-report measures and were often given to clients multiple times and could be subject to both self-report biases, as well as testing effects. Completing the same measure repeatedly can influence its' reliability. Future research within this same vein could include a structured clinical interview (e.g. CAPS).

### **Conclusion and Implications for Practice**

The results of the current study have added to the body of literature which continues to demonstrate the effectiveness of CPT as a treatment for PTSD in conditions that mirror realistic clinical practice. Further, the large effect size found among a relatively small sample of participants is encouraging, and suggests the treatment is robust. One of the most promising results in the current study is the relationship between practice assignments and post-treatment PCL-5 scores. Of the many CPT session elements tracked in the VHA national progress note templates, the practice assignment is one of only a few that is consistently present in each session. In session one the therapist is asked to 'discuss Veteran's readiness for treatment.' This includes, in part, a discussion of the rationale behind CPT and the commitment required to complete it. Clients are told there are 168 hours in a single week, and therapy will likely only

consist of a single hour of their time. Therefore, being engaged in practice assignments outside of therapy is crucial to ensure the effectiveness of the treatment. The finding that assigning homework is a significant predictor of final PCL-5 scores not only reinforces the importance of a major tenant of CPT and CBT based treatments as a whole, it suggests this element may represent a key mechanism for change in this therapy protocol.

As for the elements of CPT which were found to predict an increase in final PCL-5 scores, there may be lessons for practitioners there as well. One interpretation may be that elements such as discussing treatment concerns, introducing the trauma account, introducing the CBW, and introducing the intimacy module could be altered in the manual to increase client's receptiveness to the topics. Further, one of the elements which was the most 'absent' or 'skipped' session element in this sample was 'assessing the therapy relationship.' Future research may strive to include participants which completed a measure of therapeutic rapport (e.g. Working Alliance Inventory) to determine if level of rapport interacts with these identified session elements in any way.

Interestingly, each of the four elements which predicted increases in final PCL-5 scores could be considered therapist-dependent variables. Unlike reviewing practice assignments or completing worksheets in session which requires full engagement on the part of the client, these variables could be described as psychoeducational in nature. This finding may contain an important lesson for practitioners. These results do not necessarily suggest these elements could simply be removed from the protocol to improve outcome. They may however, indicate therapists could change the manner in which these topics are delivered in session to increase client engagement with the material. For example, in the beginning of treatment symptoms of PTSD can increase before they eventually decrease consistently over time. Client's may attribute

this to discussing their concerns about treatment, or to completing the trauma account assignment. It may be important to discuss this symptom rebound possibility early on with each client in order to normalize the experience and strengthen therapeutic rapport.

The current study has a few key limitations. First, the small sample size, which was not demographically representative of the overall Veteran population, limited the power and generalizability of the findings. Second, the limited amount of therapist-level data narrowed the conclusions able to be reached about overall adherence to CPT following formal training programs. Finally, the restriction of using only self-report data within the VHA national CPT progress note templates limited the depth of information able to be collected. However, these limitations point to future directions for research to both strengthen the conclusions reached as a result of the current study, and to search for explanations to findings which were surprising. These future directions may include: (1) a real-time effectiveness study utilizing the CAPS in addition to self-report measures to increase the richness of symptom data collected, (2) a second study utilizing retrospective chart review with a larger sample size which includes multiple measures including the PCL-5, PHQ-9, and WAI to shed light on some of the interactions between rapport and session elements of CPT, and (3) research which includes therapist-level variables with the aim of determining overall adherence rates to CPT after completion of formal training.

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## Appendix A PCL-5 Weekly

**Instructions:** Below is a list of problems that people sometimes have in response to a very stressful experience. Please read each problem carefully and then circle one of the numbers to the right to indicate how much you have been bothered by that problem in the past week.

<i>In the past week, how much were you bothered by:</i>	<i>Not at all</i>	<i>A little bit</i>	<i>Moderately</i>	<i>Quite a bit</i>	<i>Extremely</i>
1. Repeated, disturbing, and unwanted memories of the stressful experience?	0	1	2	3	4
2. Repeated, disturbing dreams of the stressful experience?	0	1	2	3	4
3. Suddenly feeling or acting as if the stressful experience were actually happening again ( <i>as if you were actually back there reliving it</i> )?	0	1	2	3	4
4. Feeling very upset when something reminded you of the stressful experience?	0	1	2	3	4
5. Having strong physical reactions when something reminded you of the stressful experience ( <i>for example, heart pounding, trouble breathing, sweating</i> )?	0	1	2	3	4
6. Avoiding memories, thoughts, or feelings related to the stressful experience?	0	1	2	3	4
7. Avoiding external reminders of the stressful experience ( <i>for example, people, places, conversations, activities, objects, or situations</i> )?	0	1	2	3	4
8. Trouble remembering important parts of the stressful experience?	0	1	2	3	4
9. Having strong negative beliefs about yourself, other people, or the world ( <i>for example, having thoughts such as: I am bad, there is something seriously wrong with me, no one can be trusted, the world is completely dangerous</i> )?	0	1	2	3	4
10. Blaming yourself or someone else for the stressful experience or what happened after it?	0	1	2	3	4
11. Having strong negative feelings such as fear, horror, anger, guilt, or shame?	0	1	2	3	4
12. Loss of interest in activities that you used to enjoy?	0	1	2	3	4
13. Feeling distant or cut off from other people?	0	1	2	3	4
14. Trouble experiencing positive feelings ( <i>for example, being unable to feel happiness or have loving feelings for people close to you</i> )?	0	1	2	3	4
15. Irritable behavior, angry outbursts, or acting aggressively?	0	1	2	3	4
16. Taking too many risks or doing things that could cause you harm?	0	1	2	3	4
17. Being "superalert" or watchful or on guard?	0	1	2	3	4
18. Feeling jumpy or easily startled?	0	1	2	3	4
19. Having difficulty concentrating?	0	1	2	3	4
20. Trouble falling or staying asleep?	0	1	2	3	4

## Appendix B

### Patient Health Questionnaire-9 (PHQ-9)

<b>Over the last 2 weeks, how often have you been bothered by any of the following problems? (Use “✓” to indicate your answer)</b>	Not at all	Several days	More than half the days	Nearly every day
<b>1.</b> Little interest or pleasure in doing things	0	1	2	3
<b>2.</b> Feeling down, depressed, or hopeless	0	1	2	3
<b>3.</b> Trouble falling or staying asleep, or sleeping too much	0	1	2	3
<b>4.</b> Feeling tired or having little energy	0	1	2	3
<b>5.</b> Poor appetite or overeating	0	1	2	3
<b>6.</b> Feeling bad about yourself — or that you are a failure or have let yourself or your family down	0	1	2	3
<b>7.</b> Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
<b>8.</b> Moving or speaking so slowly that other people could have noticed? Or the opposite — being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
<b>9.</b> Thoughts that you would be better off dead or of hurting yourself in some way	0	1	2	3

**If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?**

<b>Not difficult at all</b>	<b>Somewhat difficult</b>	<b>Very difficult</b>	<b>Extremely difficult</b>
_____	_____	_____	_____

Developed by Drs. Robert L. Spitzer, Janet B.W. Williams, Kurt Kroenke and colleagues, with an educational grant from Pfizer Inc. No permission required to reproduce, translate, display or distribute.

## Appendix C

SESSION NUMBER: 1 – Introduction and Education

SESSION FORMAT: \_\_\_\_\_

SESSION CONTENT: The Veteran completed the first session of Cognitive Processing Therapy (CPT) for PTSD. The following therapeutic components were addressed:

- Facilitated a good therapeutic relationship. The following elements were utilized to help establish a collaborative, positive working relationship with the Veteran:
- Reviewed and signed treatment agreement consent form.
- Provided an overview of PTSD symptoms, a cognitive explanation of the development and maintenance of PTSD, and a rationale of CPT.
- Presented the Veteran with an overview of the 12-session treatment.
- Discussed Veteran's readiness to engage in treatment.
- Discussed and addressed Veteran's questions or concerns about treatment. Veteran expressed the following questions and/or concerns:
- Asked the Veteran to describe a brief account of their most traumatic event.
- Introduced the concept of stuck points.

### PRACTICE ASSIGNMENT:

- Asked Veteran to write a one page "Impact Statement".
- Asked Veteran to review Stuck Point Handout and Stuck Point Help Sheet.

### MOTIVATIONAL ENHANCEMENT

- Identified short-term goals in several areas of functioning.
- Identified the consequences or impact of the target diagnosis/problem (or other symptoms).
- Identified the benefits of reducing the severity of the target diagnosis/problem.
  
- Assessed attitude toward therapy.
- Assessed any barriers to attending therapy and assisted the Veteran in problem-solving these barriers.

### COLLABORATION

The degree of collaboration between the Veteran and the therapist in the current session was:

Description of collaboration in this session:

Working Alliance Inventory-Short Revised (WAI-SR):

SESSION NUMBER: 2 – The Meaning of the Event

SESSION FORMAT: \_\_\_\_\_

SESSION CONTENT: The Veteran completed the Meaning of the Event session of Cognitive Processing Therapy (CPT) for PTSD. The following therapy components were addressed:

- The Veteran and therapist reviewed the Stuck Point Help Sheet and started the Stuck Point Log.
- Therapist had Veteran read their Impact Statement.
- Discussed the meaning of the Impact Statement with the Veteran with a focus on identifying "stuck points".
- Therapist collected Impact Statement from Veteran.
- Therapist introduced relationships between thoughts, feelings, and behaviors.
- Therapist and Veteran reviewed the Identifying Emotions Handout.
- Therapist introduced the A-B-C Worksheets and demonstrated how to complete them in session.

PRACTICE ASSIGNMENT:

- Therapist assigned practice assignment to complete at least one A-B-C Worksheet each day.
- Therapist asked the Veteran to continue to add to the Stuck Point Log.

MOTIVATIONAL ENHANCEMENT

- Assessed attitude toward therapy.
- Assessed any barriers to attending therapy and assisted the Veteran in problem-solving these barriers.

COLLABORATION

The degree of collaboration between the Veteran and the therapist in the current session was:

Description of collaboration in this session:

Working Alliance Inventory-Short Revised (WAI-SR):

SESSION NUMBER: 3 – Thoughts and Feelings

SESSION FORMAT: \_\_\_\_\_

SESSION CONTENT: The Veteran completed the Thoughts and Feelings Session of the Cognitive Processing Therapy (CPT) for PTSD. The following therapy components were addressed:

- Therapist reviewed homework (A-B-C Worksheets) with Veteran, and helped further differentiate between thoughts and feelings.
- The Veteran did not complete any worksheets between sessions; therefore, the Veteran was asked to complete worksheets in session.
- Therapist helped Veteran identify stuck points and add them to the Stuck Point Log.
- Therapist helped the Veteran to begin to challenge problematic thoughts using Socratic Questioning.
- Therapist introduced the trauma narrative and discussed the issue of avoidance.
- Therapist helped the Veteran challenge inaccurate thoughts about completing the trauma narrative for next session.

#### PRACTICE ASSIGNMENT

- Therapist asked Veteran to write an account of their most traumatic event in detail.
- Therapist asked Veteran to continue using the A-B-C Worksheets, completing one each day.

#### MOTIVATIONAL ENHANCEMENT

- Assessed attitude toward therapy.
- Assessed any barriers to attending therapy and assisted the Veteran in problem-solving these barriers.

#### COLLABORATION

The degree of collaboration between the Veteran and the therapist in the current session was:

Description of collaboration in this session:

Working Alliance Inventory-Short Revised (WAI-SR):

SESSION NUMBER: 4 – Remembering the Traumatic Event

SESSION FORMAT: \_\_\_\_\_

SESSION CONTENT: The Veteran completed the Trauma Event session of Cognitive Processing Therapy (CPT) for PTSD. The following therapy components were addressed:

- Therapist reviewed the completed A-B-C Worksheets with Veteran.
- Therapist had Veteran read the trauma account aloud.
- The Veteran did not bring the assigned trauma narrative to session; therefore, the therapist asked the Veteran to recount the trauma in session and to complete an A-B-C Worksheet on avoidance.
- Therapist helped the Veteran go through the trauma account to identify stuck points using Socratic Questioning.
- Therapist helped Veteran connect feelings to thoughts.
- Therapist collected trauma account from Veteran.

#### PRACTICE ASSIGNMENT

- Therapist asked Veteran to rewrite the trauma account and to continue using the A-B-C Worksheets, completing at least one each day.

#### MOTIVATIONAL ENHANCEMENT

- Assessed attitude toward therapy.
- Assessed any barriers to attending therapy and assisted the Veteran in problem-solving these barriers.

#### COLLABORATION

The degree of collaboration between the Veteran and the therapist in the current session was:

Description of collaboration in this session:

Working Alliance Inventory-Short Revised (WAI-SR):

SESSION NUMBER: 5 – Re-Write Event Session

SESSION FORMAT: \_\_\_\_\_

SESSION CONTENT: The Veteran completed the rewrite of Trauma Event session of Cognitive Processing Therapy (CPT) for PTSD. The following therapy components were addressed:

- Therapist reviewed completed A-B-C Worksheets with Veteran and helped the Veteran challenge distorted beliefs.
- Therapist had Veteran read the re-writing of the trauma account and helped the Veteran review the account for additional stuck points.
- Therapist targeted cognitions about blame and/or guilt for cognitive restructuring using Socratic Questioning.
- Therapist introduced the "Challenging Questions" to aid in challenging stuck points.

**PRACTICE ASSIGNMENT**

- Therapist assigned stuck points to be challenged from the Stuck Point Log. Veteran was asked to complete at least one Challenging Questions (CQ) Worksheet each day.
- Therapist asked Veteran to write an additional traumatic account if Veteran felt there was another trauma that needed to be addressed.

**MOTIVATIONAL ENHANCEMENT**

- Assessed attitude toward therapy.
- Assessed any barriers to attending therapy and assisted the Veteran in problem-solving these barriers.

**COLLABORATION**

The degree of collaboration between the Veteran and the therapist in the current session was:

Description of collaboration in this session:

Working Alliance Inventory-Short Revised (WAI-SR):

SESSION NUMBER: 6 – Challenging Questions

SESSION FORMAT: \_\_\_\_\_

SESSION CONTENT: The Veteran completed the Challenging Questions Session of Cognitive Processing Therapy (CPT). The following therapy components were addressed:

- Therapist and Veteran reviewed the Veteran's completed Challenging Questions Worksheets (CQS).
- Therapist had Veteran read an additional trauma account if the Veteran brought one to session.
- Therapist reminded the Veteran to continue reading all trauma accounts that continue to evoke strong negative thoughts or feelings.
- Therapist helped Veteran focus on stuck points related to self-blame and hindsight bias.
- Therapist introduced the Problematic Thinking Patterns Worksheet (e.g., minimization/ exaggeration, all-or-none thinking), and examples from the Veteran's thinking about the traumatic event and life in general were used to illustrate these patterns.

#### PRACTICE ASSIGNMENT

- Veteran was asked to complete one Problematic Thinking Patterns Worksheet each day.

#### MOTIVATIONAL ENHANCEMENT

- Assessed attitude toward therapy.
- Assessed any barriers to attending therapy and assisted the Veteran in problem-solving these barriers.

#### COLLABORATION

The degree of collaboration between the Veteran and the therapist in the current session was:

Description of collaboration in this session:

Working Alliance Inventory-Short Revised (WAI-SR):

SESSION NUMBER: 7 – Problematic Thinking Session

SESSION FORMAT: \_\_\_\_\_

SESSION CONTENT: The Veteran completed the Problematic Thinking Patterns Session of Cognitive Processing Therapy (CPT). The following therapy components were addressed:

- Therapist and Veteran reviewed Veteran's completed Problematic Thinking Patterns Worksheets.
- Therapist reminded the Veteran to continue reading all trauma accounts that continue to evoke strong negative thoughts and feelings.
- Therapist introduced the Challenging Beliefs Worksheet (CBW) as a method of self-guided cognitive restructuring.
- An example stuck point was used to illustrate the use of the worksheet.
- Therapist introduced the Safety Module.

#### PRACTICE ASSIGNMENT

- The Veteran was asked to review the Safety Module handout before the next session.
- Veteran was asked to complete one Challenging Beliefs Worksheet each day, with at least one of these daily worksheets addressing Safety.

#### MOTIVATIONAL ENHANCEMENT

- Assessed attitude toward therapy.
- Assessed any barriers to attending therapy and assisted the Veteran in problem-solving these barriers.

#### COLLABORATION

The degree of collaboration between the Veteran and the therapist in the current session was:

Description of collaboration in this session:

Working Alliance Inventory-Short Revised (WAI-SR):

SESSION NUMBER: 8 – Safety Session

SESSION FORMAT: \_\_\_\_\_

SESSION CONTENT: The Veteran completed the Safety Session of Cognitive Processing Therapy (CPT) for PTSD. The following therapy components were addressed:

- Therapist and Veteran reviewed Veteran's completed Challenging Beliefs Worksheets to challenge stuck points and generate alternative beliefs.
- Therapist and Veteran discussed the Safety handout.
- Therapist and Veteran reviewed any Safety-related Challenging Beliefs Worksheets completed as a practice assignment.
- Therapist assisted Veteran in challenging beliefs generated by Veteran in session using the Challenging Beliefs Worksheet.
- Therapist introduced the Trust Module.

PRACTICE ASSIGNMENT:

- Therapist asked the Veteran to review the Trust handout before the next session.
- Veteran was asked to complete one Challenging Beliefs Worksheet each day, with at least one of these daily worksheets addressing Trust.

MOTIVATIONAL ENHANCEMENT

- Assessed attitude toward therapy.
- Assessed any barriers to attending therapy and assisted the Veteran in problem-solving these barriers.

COLLABORATION

The degree of collaboration between the Veteran and the therapist in the current session was:

Description of collaboration in this session:

Working Alliance Inventory-Short Revised (WAI-SR):

SESSION NUMBER: 9 – Trust Issues Session

SESSION FORMAT: \_\_\_\_\_

SESSION CONTENT: The Veteran completed the Trust session of Cognitive Processing Therapy (CPT) for PTSD. The following therapy components were addressed:

- Therapist and Veteran reviewed Veteran's completed Challenging Beliefs Worksheets to challenge stuck points and generate alternative beliefs.
- Therapist and Veteran discussed the Trust handout.
- Therapist and Veteran reviewed any Trust-related Challenging Beliefs Worksheets the Veteran completed for their practice assignment.
- Therapist assisted Veteran in challenging beliefs generated by Veteran in session using the Challenging Beliefs Worksheet.
- Therapist introduced the Power/Control Module.

#### PRACTICE ASSIGNMENT

- Therapist asked the Veteran to review the Power/Control handout before the next session.
- Veteran was asked to complete one Challenging Beliefs worksheet each day, with at least one of these daily worksheets addressing Power/Control.

#### MOTIVATIONAL ENHANCEMENT

- Assessed attitude toward therapy.
- Assessed any barriers to attending therapy and assisted the Veteran in problem-solving these barriers.

#### COLLABORATION

The degree of collaboration between the Veteran and the therapist in the current session was:

Description of collaboration in this session:

Working Alliance Inventory-Short Revised (WAI-SR):

SESSION NUMBER: 10 – Power/Control Issues Session

SESSION FORMAT: \_\_\_\_\_

SESSION CONTENT: The Veteran completed the Power/Control session of Cognitive Processing Therapy (CPT) for PTSD. The following therapy components were addressed:

- Therapist and Veteran reviewed Veteran's completed Challenging Beliefs Worksheets to challenge stuck points and generate alternative beliefs.
- Therapist and Veteran discussed the Power/Control handout.
- Therapist and Veteran reviewed any Power/Control-related Challenging Beliefs Worksheets the Veteran completed for their practice assignment.
- Therapist introduced Ways of Giving and Receiving Power handout and asked the Veteran to discuss the ways they may do these positively and negatively.
- Therapist assisted Veteran in challenging beliefs generated by Veteran in session using the Challenging Beliefs Worksheet.
- Therapist introduced the Esteem Module.

#### PRACTICE ASSIGNMENT

- Therapist asked the Veteran to review the Esteem handout before the next session.
- Veteran was asked to complete one Challenging Beliefs Worksheet each day, with at least one of these daily worksheets addressing Esteem.
- Veteran was asked to practice doing nice things for himself/herself and to practice giving and receiving compliments each day.

#### MOTIVATIONAL ENHANCEMENT

- Assessed attitude toward therapy.
- Assessed any barriers to attending therapy and assisted the Veteran in problem-solving these barriers.

#### COLLABORATION

The degree of collaboration between the Veteran and the therapist in the current session was:

Description of collaboration in this session:

Working Alliance Inventory-Short Revised (WAI-SR):

SESSION NUMBER: 11 – Esteem Issues Session

SESSION FORMAT: \_\_\_\_\_

SESSION CONTENT: The Veteran completed the Esteem session of Cognitive Processing Therapy (CPT) for PTSD. The following therapy components were addressed:

- Therapist and Veteran reviewed Veteran's completed Challenging Beliefs Worksheets to challenge stuck points and generate alternative beliefs.
- Therapist and Veteran discussed the Esteem handout.
- Therapist and Veteran reviewed any Esteem-related Challenging Beliefs Worksheets the Veteran completed for their practice assignment.
- Therapist assisted the Veteran in challenging beliefs generated by the Veteran in session using the Challenging Beliefs Worksheet.
- Therapist introduced the Intimacy Module.

#### PRACTICE ASSIGNMENT

- Therapist asked the Veteran to review the Intimacy handout before the next session.
- Veteran was asked to complete one Challenging Beliefs Worksheet each day, with at least one of these daily worksheets addressing Intimacy.
- Veteran was asked to continue to practice doing nice things for himself/herself and to practice giving and receiving compliments each day.
- Veteran was asked to rewrite their Impact statement with a focus on what they believe now.

#### MOTIVATIONAL ENHANCEMENT

- Assessed attitude toward therapy.
- Assessed any barriers to attending therapy and assisted the Veteran in problem-solving these barriers.

#### COLLABORATION

The degree of collaboration between the Veteran and the therapist in the current session was:

Description of collaboration in this session:

Working Alliance Inventory-Short Revised (WAI-SR):

SESSION NUMBER: 12 – Intimacy Issues and Meaning of the Event

SESSION FORMAT: \_\_\_\_\_

SESSION CONTENT: The Veteran completed the final session of Cognitive Processing Therapy (CPT) for PTSD. The following therapy components were addressed:

- Therapist and Veteran reviewed Veteran's completed Challenging Beliefs Worksheets to challenge stuck points and generate alternative beliefs.
- Therapist and Veteran discussed the Intimacy handout.
- Therapist and Veteran reviewed any Intimacy-related Challenging Belief Worksheets the Veteran completed for their practice assignment.
- Veteran read their new Impact Statement.
- Therapist read the Veteran's old Impact Statement. Veteran and therapist discussed the difference between the old and new Impact Statements, noting changes in the Veteran's cognitions and feelings.
- Veteran was encouraged to continue using newly-developed skills (e.g., what worked, how Veteran might use the skills in the future).

#### MOTIVATIONAL ENHANCEMENT

- Assessed attitude toward therapy.
- Assessed any barriers to attending therapy and assisted the Veteran in problem-solving these barriers.

#### COLLABORATION

The degree of collaboration between the Veteran and the therapist in the current session was:

Description of collaboration in this session:

Working Alliance Inventory-Short Revised (WAI-SR):

#### REVIEW OF PROGRESS DURING TREATMENT

The Veteran's progress in relation to Cognitive Processing Therapy (CPT) treatment was:

The impact of therapy on patient's functioning was:

#### PLAN:

TREATMENT COMPLETED

BOOSTER SESSIONS

SCHEDULED POST TREATMENT ASSESSMENT SESSION:

REFERRED FOR FURTHER EVALUATION, TREATMENT OR OTHER SERVICES