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# A Systematic Review of Cognitive Processing Therapy and Prolonged Exposure with Veterans

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A Systematic Review of Cognitive Processing Therapy and Prolonged Exposure  
With Veterans

by

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MSW Clinical Research Paper

Presented to the Faculty of the  
School of Social Work  
St. Catherine University and the University of St. Thomas  
St. Paul, Minnesota  
in Partial fulfillment of the Requirements for the Degree of  
Master of Social Work

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The Clinical Research Project is a graduation requirement for MSW students at St. Catherine University/University of St. Thomas School of Social Work in St. Paul, Minnesota and is conducted within a nine-month time frame to demonstrate facility with basic social research methods. Students must independently conceptualize a research problem, formulate a research design that is approved by a research committee and the university Institutional Review Board, implement the project, and publicly present the findings of the study. This project is neither a Master's thesis nor a dissertation.

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### **Abstract**

The purpose of this systematic review was to identify the effectiveness of Cognitive Processing Therapy and Prolonged Exposure in reducing PTSD symptomology in United States military veterans. The present research study attempted to identify individual factors that may lead to a more effective treatment outcome with one of the two therapies that are frequently utilized in the Veterans Affairs Health Care System. Thirteen studies met inclusion criteria for the present study. The findings demonstrated both Cognitive Processing Therapy and Prolonged Exposure are effective in reducing PTSD symptomology in veterans. Only one study directly compared the two therapies, and Prolonged Exposure was found to be more effective. Several studies indicated factors that may impact outcomes with Cognitive Processing Therapy and Prolonged Exposure including a veteran's period of service, age, gender, application for increase in service connection, race and ethnicity, education, alcohol use, and use of psychotropic medication. More research is needed to directly compare the effectiveness of Cognitive Processing Therapy and Prolonged Exposure, so veterans can make more informed decisions when considering the therapies.

## **A Systematic Review of Cognitive Processing Therapy and Prolonged Exposure With Veterans**

Nearly two million United States veterans have returned home from deployments in Iraq and Afghanistan, and many have witnessed horrific events, including shootings, improvised explosive device bombings, and deaths of fellow service members (Carlson, Stromwall, & Lietz, 2013). Unfortunately it is common for veterans to struggle with these post-deployment stressors, and many veterans go on to be diagnosed with post-trauma mental health disorders.

Posttraumatic Stress Disorder negatively impacts the quality of life of veterans and the diagnosis often occurs with Major Depressive Disorder, drug and alcohol abuse, and Generalized Anxiety Disorder (Chard, Schumm, Owens, & Cottingham, 2010). It is important that research continues, so veterans can receive the best possible care when returning home from combat to prevent the development of Posttraumatic Stress Disorder and to prevent the exacerbation of these symptoms.

Posttraumatic Stress Disorder (PTSD) is characterized by avoidance, hyperarousal, intrusive symptoms, and negative alterations in cognitions and mood (American Psychiatric Association, 2013). Approximately 11-20% of veterans of Operations Enduring Freedom and Operation Iraqi Freedom have developed PTSD in comparison to 30% of Vietnam War veterans (PTSD: National Center for PTSD). Differences between the prevalence of PTSD in Vietnam War and Operations Enduring Freedom/Operation Iraqi Freedom veterans may be due to variables in war experiences, such as war tactics and the time length and number of deployments, along with the veterans' perception of their homecoming reception (Chard et al., 2010). Both eras of veterans continue to struggle with PTSD symptoms.

Little research has been done on the treatment responses of veterans who are diagnosed with PTSD. In the present research study, a systematic review was used to identify discrepancies in veterans' PTSD treatment responses to Cognitive Processing Therapy and Prolonged Exposure. The present research study will attempt to identify individual factors that may lead to a more effective treatment outcome with one of the two therapies that are frequently utilized in the Veterans Affairs Health Care System.

### **Literature Review**

United States veterans of all wars have returned from deployment with a similar set of distressing mental health symptoms, which has been referred to as combat fatigue in the past and Posttraumatic Stress Disorder in the present (Barnes & Harvey, 2008). Horowitz and Solomon (1975) were some of the first researchers to study and write about these symptoms. They described post-deployment mental health symptoms as:

Nightmares, painful moods, and emotional storms, direct or symbolic behavior repetitions... impaired social relationships, aggressive and/or self-destructive behavior, and fear or loss of control over hostile impulses... This inability to assimilate a time of life into an ongoing schemata will lead to impaired self-concepts, tendencies of depersonalization, depression, shame, frustration and reactive rage, and psychosocial disabilities. (p. 72)

Since the Vietnam War, researchers have continued to study effective treatments for United States veterans who return from deployment with PTSD. PTSD was first recognized by the American Psychiatric Association as a medical diagnosis in 1980 when it appeared in the Diagnostic and Statistical Manual of Mental Disorders-III (Cukor, Spitalnick, Difede, Rizzo, & Rothbaum, 2009).



**PTSD**

To meet DSM-5 criteria for PTSD, an individual must meet criteria for the four symptom clusters including: intrusive symptoms, avoidance, negative changes in mood, and arousal. PTSD diagnostic criteria require that an individual observed death or threatened death, or was exposed to actual or threatened serious injury or sexual violence. To be diagnosed with PTSD, an individual must have either had direct exposure to the event, witnessed the event, learned about a loved one's exposure to a violent or accidental event, or had repeated exposure to aversive details of an event due to professional job duties (American Psychiatric Association, 2013). The individual must experience one intrusive symptom, such as recurrent intrusive memories, traumatic nightmares, and dissociative reactions. Diagnostic criteria require that the individual either avoids trauma-related thoughts or emotions, or avoids external reminders of the event, such as people, places, conversations, or situations. The individual must have two different negative changes in cognitions and mood, such as persistent negative beliefs about oneself or the world, inability to recall key details of the event, distorted blame of self or others, negative trauma-related emotions, diminished interest in enjoyable activities, feeling isolated from others, and decreased ability to experience positive emotions. The individual must experience two different types of changes in arousal and reactivity, such as irritability or aggressive behavior, reckless behavior, hypervigilance, exaggerated startle response, poor concentration, or sleep disturbance. These symptoms must persist for longer than a month, and they must cause symptom-related distress or impact the individual's ability to function. Lastly, these symptoms must not be a result of medication, mental illness, or drug or alcohol use.

Researchers found that of the 3.14 million veterans who served during the Vietnam War in Southeast Asia between 1964 and 1976, approximately 15.2% of veterans met the diagnostic

criteria for PTSD in the late 1980s (Scurfield, 1993). PTSD may continue to impact individuals who do not seek therapy or psychiatry services for many years. This means many Vietnam War veterans are still experiencing these symptoms today. Operation Enduring Freedom and Operation Iraqi Freedom veterans may also continue to experience PTSD symptoms for years to come without a mental health intervention, such as therapy or medication.

In a study of 289,328 Iraq and Afghanistan veterans seeking Veterans Affairs health care between years 2002 and 2008, 36.9% of veterans received mental health diagnoses and 21.8% were diagnosed with PTSD (Seal, Metzler, Gima, Bertenthal, Maguen, & Maramar, 2009). The researchers found mental health diagnoses in veterans increased four to seven times after the start of Operation Iraqi Freedom, and veterans twenty five years and younger had higher rates of PTSD than veterans aged forty and older. More veterans will continue to develop PTSD as troops continue to deploy and experience combat in the Middle East. As troops return home, it is important that mental health professionals are knowledgeable and skilled in working with individuals struggling with symptoms of PTSD.

### **Barriers to Mental Health Treatment**

Many Vietnam War veterans did not think therapy or other treatment was appropriate for them, even many of those who reported extremely disturbing combat experiences (Barnes & Harvey, 2008). These researchers believe many veterans were not interested in this type of support-group help and felt Americans did not respect the severity of their combat experiences. Other Vietnam War veterans believed working with Psychologists was unnecessary and potentially harmful to their mental health (Barnes & Harvey, 2008). These veterans believed it was better to work through problems on their own as their ancestors had, rather than talking with therapists, who they believed would assert that they were experiencing mental delusions.

In a more recent study of Vietnam, Operation Enduring Freedom, and Operation Iraqi Freedom veterans, researchers reported some veterans did not believe mental health treatment would help, while others did not have transportation to attend appointments regularly or did not live near a medical center or outpatient clinic (Sayer et al., 2009). Fear of stigma was also found to be a barrier to initiating mental health treatment. Veterans reported friends, family members, and employers would view them as “crazy” or incompetent. They believed mental health treatment was only appropriate for the most severe cases of mental illness. Veterans also were confused about how to access health benefits and viewed VA Medical Centers as facilities focused on working with older war veterans who struggled with a limited income. Some of these veterans also believed clinics not associated with the VA Health Care System would not understand military trauma or would not be competent in working with veterans (Sayer et al., 2009). There are a variety of barriers that prevent veterans from seeking mental health treatment in the Veterans Affairs Health Care System and in the community.

### **Differences in Societal Support and Homecoming**

Differences between the Vietnam War and Operation Enduring Freedom and Operation Iraqi Freedom regarding combat experiences and homecoming reception may cause differences in PTSD symptoms (Chard et al., 2010). Much of society did not support the Vietnam War or the service members who volunteered or were drafted to fight in the war. While societal support of Operation Enduring Freedom and Operation Iraqi Freedom has decreased over time, much of America continues to support and praise the service members who volunteer to join the military and serve their country, especially in comparison to the lack of societal support veterans experienced during the Vietnam War (Chard et al., 2010).

Vietnam veterans reported they experienced a negative homecoming reception, and many veterans indicated they did not feel supported by family members or society upon their return. Researchers have found the perception of a negative homecoming reception when returning from war is a strong predictor of PTSD (Fontana & Rosenheck, 1994). Researchers believe World War II veterans seemed to report fewer PTSD symptoms when they were treated as heroes upon their return from war (Fontana & Rosenheck, 1994). This suggests veterans of the Vietnam War may have higher severity levels of PTSD symptoms due to their unwelcoming homecoming. Currently researchers are unsure of Operation Enduring Freedom and Operation Iraqi Freedom veterans' perception of post-deployment support and its relationship to PTSD prevalence and severity.

### **War Environment Differences**

Other differences in war environments may also cause variances in PTSD severity and prevalence. Researchers found Vietnam War veterans experienced more severe abusive violence than veterans of World War II and the Korean War (Fontana & Rosenheck, 1994). These researchers also found more traumatic war experiences are associated with more severe PTSD symptoms. While World War II is considered to have been fought in a traditional manner, with the enemy clearly identified by distinct uniforms and with war success measured by the amount of territory gained, the Vietnam War consisted of Guerilla Warfare with war success measured by the number of enemies killed (Fontana & Rosenheck, 1994). These researchers also found veterans report the act of killing other human beings as the most traumatic aspect of war, compared to being a target of an attempted killing or observing a killing. War success was measured by the number of human beings killed by our veterans, the most traumatic experience reported by Vietnam War veterans. Vietnam War veterans also experienced and engaged in

more war atrocities, such as mutilation, decapitation, and torture of noncombatant citizens or prisoners of war, than veterans of the previous wars (Fontana & Rosenheck, 2008). Participation in war atrocities could worsen the severity of mental health and PTSD symptoms, as these experiences may contribute to more self-blame and shame.

### **Relationships and PTSD**

Many Veterans have reported the relationships they formed with other service members during basic training and deployment were the strongest relationships they formed in their entire lives (Pivar, 2004). Researchers have found military relationships often have the essential characteristics of intense attachment relationships, including trust, loyalty, respect, and protection (Papa, Neria, & Litz, 2008). Service members may experience grief upon losing a fellow service member while deployed, which may impact their ability to fulfill military duties during stressful periods of time. Service members may struggle to have time to grieve their losses and process their difficult emotions due to the demands and stress of deployment to a combat zone. Service members must perform their duties while coping with the stressors of combat and struggling to accept and cope with the sadness of having a close unit member die.

Service members were often rotated in and out of combat on individualized schedules during the Vietnam War, where as in Operation Enduring Freedom and Operation Iraqi Freedom most soldiers and reserve members initiated training with the unit they would deploy with to Iraq and Afghanistan (Pivar, 2004). This means Operation Enduring Freedom and Operation Iraqi Freedom service members spent more time together and had more time to begin to trust and respect each other, which could lead to relationships with stronger feelings of attachment. Researchers have acknowledged that while a strong attachment relationship is a protective factor

against developing PTSD, stronger attachments can also unfortunately lead to more distress when service members are killed (Pivar, 2004).

Although Vietnam veterans had shorter periods of time with a set unit, Vietnam veterans reported witnessing the death of a fellow unit member was one of their greatest losses in the war (Barnes & Harvey, 2008). One veteran said:

I lost friends in Vietnam and it hurts so much so I don't want to get close to anyone in fear that something will happen to them. I showed no emotion when my mother passed away. I can't say how I feel about my wife or loved ones. I just can't tell anyone my feelings. I just keep it all inside and I blow up easily. (Barnes & Harvey, 2008, p. 173)

Clearly many Vietnam War veterans were greatly impacted by experiencing death during deployment. The potential for stronger attachment relationships of Operation Enduring Freedom and Operation Iraqi Freedom veterans could lead to more devastating combat losses.

### **Effects of PTSD**

PTSD can negatively impact the physical, mental, and emotional well-being of diagnosed individuals. Individuals diagnosed with PTSD often describe feeling numb to emotions and may tend to withdraw from family members and friends. Veterans with survivor guilt, who feel guilty that a fellow service member was killed rather than him or herself, may have an especially difficult time reconnecting and forming intimate relationships with loved ones upon return from deployment (Galovski & Lyons, 2004). Veterans also may use alcohol or drugs to attempt to reach a state in which they no longer feel the difficult emotion they are attempting to avoid. This numb emotional state can be significantly damaging to relationships with family and friends, and can also impact the veteran's ability to experience positive emotions, such as happiness and

excitement (Galovski & Lyons, 2004). Emotions are needed to communicate and connect with others, and family members may have a difficult time coping with this change in behavior.

Veterans diagnosed with PTSD are more likely to suffer from several physical health conditions. Veterans have higher rates of cancer, stroke, non-fatal heart disease, and arthritis in comparison to non-military individuals of similar ages (Buckley, Mozley, Bedard, Dewulf, & Greif, 2004). These researchers discovered veterans diagnosed with PTSD are also more likely to smoke tobacco and less likely to exercise or attend preventative medical appointments.

Operation Enduring Freedom and Operation Iraqi Freedom veterans diagnosed with PTSD were found to have lower health-related quality of life scores, which measures overall physical health impairments that impact daily functioning (Asnaani, Reddy, & Shea, 2014). Vietnam War veterans diagnosed with PTSD are more likely to commit suicide than Vietnam War veterans who are not diagnosed with PTSD (Bullman & Kang, 1994). Overall, a PTSD diagnosis can impact a veteran's overall wellbeing in a variety of negative ways. More research is needed to identify the most effective treatment for PTSD so that veterans are able to have more positive physical, mental, and emotional health outcomes.

### **Treatment of PTSD Symptoms**

PTSD symptoms are expected to continue over time without a mental health intervention. Some individuals are prescribed medication to target the symptoms of intrusive thoughts, avoidance, arousal, and mood changes (PTSD: National Center for PTSD). Medications prescribed for PTSD symptoms target neurotransmitters, including serotonin, norepinephrine, and dopamine. These neurotransmitters are associated with the fear and anxiety circuitry of the brain (PTSD: National Center for PTSD). Research supports the use of selective serotonin reuptake inhibitors for the reduction of PTSD symptoms. Sertraline and paroxetine are the only

drugs approved by the Food and Drug Administration to treat PTSD symptoms at this time (PTSD: National Center for PTSD). Researchers have found medication can be helpful in reducing the symptoms of PTSD; however, medication treatment rarely completely eradicates PTSD symptoms. Medication may be more effective when individuals also participate in trauma related psychotherapy (PTSD: National Center for PTSD).

The International Society for Traumatic Stress Studies recommends Cognitive Behavioral Therapy programs consisting of Exposure Therapy, Cognitive Therapy, and Stress Inoculation Training (Foa, 2009). They also support comprehensive programs combining these elements, such as Cognitive Processing Therapy. These Cognitive Behavioral therapies most often consist of 8-12 weekly or biweekly sessions lasting between 60 and 90 minutes each. Individuals are asked to complete homework between sessions to spend more time working on different aspects of their treatment. Cognitive Processing Therapy and Exposure Therapy are both supported by the International Society for Traumatic Stress Studies as evidence-based therapies for PTSD.

### **Cognitive Processing Therapy**

Cognitive Processing Therapy is a 12 session evidence-based manualized treatment with a cognitive therapy focus and an optional written trauma account component (Resick, Monson, Chard, 2014). The therapy can be adapted for military trauma as well as group therapy. The therapy can also be adapted to reduce the extent of exposure to the index trauma by adding in additional cognitive sessions in place of the written account of the index trauma. While Cognitive Processing Therapy was initially developed for women suffering from PTSD after sexual assault, researchers later adapted the therapy for military veterans experiencing PTSD after returning home from deployment (Monson, Schnurr, Resick, Freidman, Young-Xu, & Stevens, 2006).



Cognitive Processing Therapy consists of 6 phases: pretreatment assessment, education on PTSD, thoughts, and emotions; processing of the index trauma through discussion and writing of the impact statement and trauma account; learning to challenge unhelpful thinking related to the trauma by identifying “stuck points”; identifying trauma themes related to safety, trust, power, control, esteem, and intimacy; and identifying goals and possible concerns the future (Resick et al., 2014). According to this treatment model, PTSD is thought to be an inability to recover from a traumatic event, and if an event is extremely severe, nearly everyone would have symptoms reflective of PTSD (Resick et al., 2014).

The therapist begins by educating the participant on the symptoms of PTSD and the ways in which these symptoms may impact functioning and wellness. For example, the therapist may explain that individuals may feel safe and content when they feel emotionally numb, but this also leads to the inability to experience happiness and excitement. The therapist explains the way individuals form beliefs about themselves and the world, and how these beliefs are often altered after a traumatic event, which leads to negative generalizations or self-blame.

The therapist asks the individual to write a brief impact statement explaining why the individual believes the event happened and to explain how the event has impacted life in regards to safety, trust, power and control, esteem, and intimacy. The therapist then works to identify stuck points in the impact statement which may be preventing the individual from processing the event, acknowledging emotions, and moving forward. The therapist educates the individual on emotions, and works with the patient to identify the connection between events, thoughts, emotions, and behavior. The individual then writes a full account of the traumatic event, including sensory details and all of the thoughts and feelings the individual can remember experiencing during the event. The participant is asked to read the account every day for a week,

and to allow him or herself to experience the emotions that come up while writing and reading the account. The participant and therapist later work to identify cognitive distortions, which are exaggerated or ineffective thoughts that often lead to negative emotional experiences, that were written into the trauma account. The therapist uses Socratic questioning to encourage the participant to look at the situation with a focus on relevant information that the individual may not be currently considering. Focusing on this relevant information may help the individual reevaluate a previous assumption or develop a new thought or plan.

In later sessions the patient rewrites the trauma account with the goal of affective expression and fewer cognitive distortions or thoughts of blame and guilt. The patient uses worksheets to challenge distortions by assessing if the thought has the common characteristics of a distortion, such as all-or-nothing thinking, exaggerated probability, being based on feelings rather than facts, mind reading, or ignoring important aspects of the situation. In the final sessions the therapist and individual review the extent the traumatic event has impacted the individual's thoughts on trust, power and control, esteem, and intimacy, while working to develop more balanced perspectives of these topics, as well as developing goals for the future

### **Social Cognitive Theory to understand PTSD**

Cognitive Processing Therapy was created with the social cognitive theory of PTSD in mind (Resick et al., 2014). Social cognitive theory emphasizes the importance of how distorted cognitions can impact an individual's emotions and behaviors. It is thought individuals assimilate, accommodate, or over-accommodate after experiencing a traumatic event. When individuals utilize assimilation, they alter incoming information to match their prior beliefs. If a person thinks bad things only happen to bad people, they would then believe that because they were assaulted, they were a bad person and deserved the assault. Individuals who tend to over-

accommodate may alter their prior beliefs of the world in an attempt to understand the assault. If an individual thought the world was generally a safe place, the individual may alter their beliefs after the assault and begin to believe that the world is an extremely dangerous place where no one should ever be trusted. The Cognitive Processing Therapy clinician works with the individual to learn to accommodate or to change prior beliefs to be able to incorporate new information, rather than assimilate or over-accommodate. An example of accommodation is the thought that the world is generally safe, but unfortunately traumatic events can happen. In Cognitive Processing Therapy, therapists work with individuals to identify how they understand and make sense of the traumatic event they experienced.

### **Prolonged Exposure**

Prolonged Exposure is an evidenced-based therapy for individuals struggling with PTSD that is based on the emotional processing theory (Foa, 2011). Prolonged Exposure works to change maladaptive behaviors which in turn change negative cognitive constructs. The therapy generally consists of eight to fifteen sessions, with each session lasting approximately 60-90 minutes. The therapist using Prolonged Exposure works with the individual to promote emotional processing of traumatic memories through different types of exposure techniques. This therapy supports the idea that PTSD results from the individual's inability to process the memories surrounding the traumatic event because the individual intentionally avoids thoughts, emotions, and situations that are in some way connected to the traumatic event.

### **Emotional Processing Theory**

The emotional processing theory of PTSD focuses on the fear network that is thought to be generated from a traumatic event. The fear network is believed to be triggered by anything that faintly resembles the traumatic event (Foa, Steketee, and Rothbaum, 1989) and the

avoidance symptoms of PTSD result from the individual's attempt to avoid any stimuli potentially related to the traumatic event. Therapists using the emotional processing theory of PTSD believe individuals can habituate to the memory of their fear by being repeatedly exposed to the memory in a safe and caring space. Foa wrote, "First, the traumatic memory structure is thought to be characterized by a particularly large number of stimulus elements that are erroneously associated with danger, which renders the fear easily activated and is reflected in the perception that the world is entirely dangerous. Second, the representations of how the person behaved during and after the trauma as well as the presence of PTSD symptoms become associated with the meaning of self-incompetence and inability to cope" (Foa, 2011, p.1044).

### **In Vivo and Imaginal Exposure Techniques**

Therapists using Prolonged Exposure use different exposure techniques to promote the processing of traumatic memories and the habituation to the fear that is associated with the memories. Imaginal exposure involves repeatedly revisiting the traumatic incident, talking through the experience aloud, and then having a discussion with the therapist about how it felt to revisit and talk aloud about the traumatic event. Foa wrote, "Revisiting and recounting the most distressing traumatic memory in imagination is designed to help patients organize the memory, reexamine the negative perceptions about their conduct during the trauma, regain new perspectives about themselves and others, distinguish between thinking about the trauma and re-experiencing the trauma, generate habituation to the trauma memory so that the trauma can be remembered without causing undue anxiety, and foster the realization that engaging in the trauma memory does not result in harm" (Foa, 2011, p.1045).

In vivo exposure is often assigned as homework to allow more time in session for imaginal exposure exercises. In order to emotionally process an event, an individual must

activate the trauma memory and reach an understanding that the disaster feared by the activation of the trauma memory does not actually occur (Foa, 2011). The therapist works with the individual to challenge flawed beliefs that relatively safe stimuli should be avoided due to a change in belief structure after a traumatic event that causes the individual to believe that most situations are dangerous. The therapist works with the individual to slowly and systematically revisit these relatively safe situations the individual has been avoiding. The therapist also works with the individual to begin to face stimuli the individual believes may be too anxiety provoking and may overwhelm their distress tolerance and coping abilities, such as watching war related newscasts on the television (Foa, 2011). Many individuals avoid situations they believe may bring up memories of the traumatic event because they fear they will lose control or they will embarrass themselves at work or in the community.

### **Conceptual Framework**

This research project is based on the conceptual framework of evidence-based practice. Evidence-based practice is the meticulous and judicious use of the best and most current available evidence to guide clinical decision making (Sackett, Rosenberg, Gray, Hanes, & Richardson, 1996). Practitioners use clinical expertise, which is developed by practice, competence, and judgment, and combine this with the best available clinical research to guide decision making regarding the best treatment plan for individual patients (Sackett et al., 1996). Practitioners must also use their expertise and clinical judgment to identify an individual's needs and special considerations. Effective evidence-based practice requires the combination of available research, clinical expertise, and attention to individual needs, values, and considerations. The purpose of this paper is to review the current research on the effectiveness

of Prolonged Exposure and Cognitive Processing Therapy in reducing veterans' symptoms of PTSD to better inform practice with veterans.

Evidence-based practice was first used in medicine to train medical residents on new or unfamiliar practices (Sackett et al., 1996). Medical residents learned how to critically assess the patient's situation while considering clinically relevant research to provide the best individualized health care. Many researchers believe social workers, and other health and human service workers, too often do not practice according to current scientific research (Mullen, Bledsoe, Bellamy, 2008). Researchers have found a disconnect between what research has shown to be the best practice, and what is actually occurring in agencies and hospitals around the United States (Mullen et al., 2008). It is critical for social workers to not only stay up to date with research, but to also implement the findings in practice.

### **Barriers to Evidence-Based Practice**

Barriers to the use of evidence-based practice in social work include lack of knowledge, lack of fit, suspicion, and lack of resources (Bellamy, Bledsoe, & Traube, 2006). These researchers report ambiguity exists on what specifically constitutes evidence-based practice in social work. Other social workers were found to struggle with inadequate access to journal entries and data, or a lack of awareness or processing of updated research studies. Some social workers believe evidence-based practices do not address the client's unique individualized needs, strengths, and culture. Others are suspicious because they believe evidence-based practice guidelines are intended to control clinicians while disregarding the clinician's clinical expertise and judgment (Bellamy et al., 2006). Overall, there are several barriers to the implementation of evidence-based practice in mental health work which may impact the client's ability to receive the best care available.

**Code of Ethics**

According to the National Association of Social Workers Code of Ethics (2008), social workers must strive towards competence and expertise by increasing professional knowledge and implementing this knowledge through effective practice skills. The social work Code of Ethics mandates social workers must remain current with evolving social work knowledge, continuously read current literature, and use critical thinking skills to analyze this literature. The National Association of Social Work understands the ethical importance of ensuring individuals receive the best possible care by requiring that all social workers keep up-to-date with the latest research on effective practice.

It is important individuals get the best available mental health treatment according to available and current evidence, as well as clinical expertise. Using the conceptual framework of evidence-based practice, the present research study attempts to discern benefits and limitations of the two widely used therapies for veterans experiencing PTSD symptoms. This research strives to clarify individual factors which may impact the effectiveness of Prolonged Exposure and Cognitive Processing Therapy. Implementing evidence-based practice in agencies and hospitals ensures patients are receiving the best care available for their unique situation. Practitioners must seek out available evidence and implement the researched practices to provide effective care, rather than utilize methods based on habit, agency norms, or anecdotal experience. Using evidence-based practice, this research study attempts to clarify differences researchers have found in effectiveness of therapy, attendance of therapy, and veteran experience of both Cognitive Processing Therapy and Prolonged Exposure. The results of this research study can be utilized to guide therapy recommendations for veterans.

## Methods

A systematic review was chosen as the method for this research study to synthesize research on Cognitive Processing Therapy and Prolonged Exposure with United States veterans. “Systematic reviews are literature reviews that adhere closely to a set of scientific methods that explicitly aim to limit systematic error, mainly by attempting to identify, appraise and synthesize all relevant studies in order to answer a particular question” (Petticrew & Roberts, 2006, p.10). Several studies have examined different aspects of Cognitive Processing Therapy and Prolonged Exposure, but literature lacked a synthesized comparison of the therapies.

The purpose of the present research study was to compare numerous research studies on the two therapies, while attempting to answer several questions to better inform practice. This study explores differences in effectiveness outcomes of Cognitive Processing Therapy and Prolonged Exposure. This study strives to identify different individual factors that may lead to a more successful treatment outcome with the two therapies. Identifying differences in treatment attendance and drop-out rates, as well as changes in mental health symptom severity during and after the completion of therapy were important goals of this study.

The systematic review began with a general search using the databases SocIndex with Full Text and PsychInfo of all available peer-reviewed and government research studies relating to Cognitive Processing Therapy and Prolonged Exposure with veterans. The search terms included: Cognitive Processing Therapy and veterans, and Prolonged Exposure and veterans. After literature was found, the author reviewed the title and abstract to assess if the articles met the selection criteria determined by the author. Only articles with the words veterans and Cognitive Processing Therapy or Prolonged Exposure in the title or abstract were used. Studies that solely focused on the use of therapy with military sexual trauma were excluded, as this study



focused on the treatment of combat-related PTSD symptoms. Studies of other nation's military veterans were excluded to ensure the therapies studied are similar and comparable. Table 1 shows the search terms that were used, as well as the inclusion and exclusion criteria. New search terms were only considered after the initial search if the terms seemed to have a similar meaning to the previously identified search terms.

The author kept a detailed table of searches and findings, with an explanation of why articles were included or excluded. The author used Table 2 to organize the findings of articles that were included in the systematic review. The author of the present study documented the author of the article, the type of therapy used, the veteran era, the findings of the study, and any factors the authors found to be correlated with changes in symptom severity.

## **Results**

Thirteen research articles met inclusion criteria for this study and these articles are summarized in Table 2. Seven of the studies addressed Cognitive Processing Therapy with veterans, four of the studies focused on Prolonged Exposure with veterans, and two studies addressed both Cognitive Processing Therapy and Prolonged Exposure. Summaries of each article included in the present study follow after the identified treatment effect descriptions. Researchers addressed potential treatment effects of a veteran's period of service, age, gender, service connection, race and ethnicity, level of education, pretreatment symptom scores, alcohol use, psychotropic medication, and the setting and format of therapy.

### **Period of Service**

The war era in which the veteran served is known as the veteran's period of service. Generally, periods of service include World War II, Korean War, Vietnam War, Post-Vietnam War, Persian Gulf War, and Operation Enduring Freedom/Operating Iraqi Freedom/Operation

New Dawn. Of the thirteen studies included, four studies addressed the impact the veteran's period of service had on therapy success. One of the four studies did not find treatment effects in Cognitive Processing Therapy were related to the veteran's period of service. Similarly, researchers in a separate study found age, rather than period of service, was correlated with the number of individuals who dropped out of Cognitive Processing Therapy and Prolonged Exposure (Alvarez et al., 2011).

Two of the included studies found veteran's period of service had effects on treatment outcomes. Researchers found Operation Enduring Freedom and Operation Iraqi Freedom veterans were less likely to begin Cognitive Processing Therapy and Prolonged Exposure compared to veterans from other periods of service. In the same study, of all veterans who began Cognitive Processing Therapy or Prolonged Exposure, Operation Enduring Freedom and Operation Iraqi Freedom veterans were less likely to complete either therapy (Mott et al., 2014).

In a separate study, Operation Enduring Freedom and Operation Iraqi Freedom veterans attended fewer Cognitive Processing Therapy sessions than Vietnam veterans, however the drop-out rates were found to be similar (Chard et al., 2010). After the researchers accounted for pretreatment PTSD severity scores, Operation Enduring Freedom and Operation Iraqi Freedom veterans demonstrated less severe PTSD symptom scores compared to Vietnam veterans after Cognitive Processing Therapy.

### **Age**

Age is an important consideration in research of veterans participating in trauma therapy, as some veterans have waited until older age to seek therapy for PTSD symptoms resulting from an earlier war, and other veterans seek therapy soon after returning from deployment. Younger veterans may have a difficult time attending weekly therapy due to strict work schedules or

family responsibilities, and older veterans could have a hard time finding transportation to therapy if they are no longer driving. Of the thirteen studies included, six studied addressed the age of veterans completing Cognitive Processing Therapy or Prolonged Exposure. Two studies did not find age correlated with veterans' therapy experiences. Of these two studies, researchers reported the veterans who dropped out of Cognitive Processing Therapy did not differ by age from the veterans who completed Cognitive Processing Therapy (Chard et al., 2010). Similarly, another study found Cognitive Processing Therapy and Prolonged Exposure completers did not differ by age compared to veterans who dropped out of therapy (Mott et al., 2014).

Two different studies found older veterans were less likely to drop out of therapy. Veterans who completed Prolonged Exposure were older than veterans who dropped out of Prolonged Exposure (Goodson, Lefkowitz, Helstrom, & Gawrysiak, 2013). Likewise, older veterans were less likely to drop out of both Prolonged Exposure and Cognitive Processing Therapy in another study (Jeffreys et al., 2014).

Two studies found age to be related to mental health symptom scores after participating in Cognitive Processing Therapy. Researchers found younger veterans improved more on the Clinician Administered PTSD Scale (CAPS); however, older veterans improved more on the self-reported PTSD Checklist – Stressor Specific Version (PCL-S) (Walter, Varkovitzky, Owens, Lewis, & Chard, 2014). In a separate study, older veterans reported a greater reduction in psychological distress compared to younger veterans (Alvarez et al., 2011).

## **Gender**

Differences in treatment success based on gender of the veteran were only addressed in two studies. Gender is an important consideration for treatment effects, as women are a minority group in the veteran population, which may mean women have different experiences of trauma

due to their minority status. Two studies looked at gender as a treatment effect factor. One study found females demonstrated a greater improvement on the CAPS measure (Walter et al., 2014), and the other study found treatment completers of Prolonged Exposure did not differ by gender (Goodson et al., 2013).

### **Service Connection**

Veterans apply for service connection after experiencing an injury during military service, and after developing a medical problem during military service. Veterans can also receive service connection when a medical problem develops later in life that may have been caused by military service, such as developing specific types of cancer known to be related to Agent Orange. Veterans receive monthly income depending on the level of their service connection, as well as additional benefits, such as reduced medication co-pays and paid nursing home stays. Veterans diagnosed with PTSD caused by their military service are eligible to apply for service connection.

Six studies addressed the service connection status of veterans beginning Cognitive Processing Therapy or Prolonged Exposure. One study found veterans who dropped out of Cognitive Processing Therapy did not differ by service connection from veterans who completed Cognitive Processing Therapy (Chard et al., 2010). Similarly, veterans who dropped out of both Cognitive Processing Therapy and Prolonged Exposure were not found to differ by service connection from veterans who completed the therapies (Mott et al., 2014).

Two studies found Cognitive Processing Therapy treatment effects were not influenced by service connection (Alvarez et al., 2011; Monson et al., 2006). One study found no differences in Prolonged Exposure PTSD symptom reduction related to veterans' service connection (Goodson et al., 2013).

One study found veterans who were applying for an increase in service connection demonstrated less improvement on the CAPS and the PCL-S measures (Walter et al., 2014). Researchers also found veterans were more likely to begin Cognitive Processing Therapy or Prolonged Exposure if they were service connected due to a PTSD diagnosis (Mott et al., 2014).

### **Race and Ethnicity**

Differences in therapy outcomes due to a veteran's ethnicity and race are important to consider as veterans may have diverse war experiences due to their minority group status. Veterans of minority groups may be treated differently or have different opportunities due to having a different skin color or ethnicity. Veterans may also relate to therapy differently due to cultural norms related to engaging in mental health treatment. Six studies addressed ethnicity as a potential factor influencing veterans' therapy experiences. Three studies found drop-outs were not influenced by ethnicity, one study with Cognitive Processing Therapy (Chard et al., 2010) one study with Prolonged Exposure (Goodson et al., 2013), and one study with both Prolonged Exposure and Cognitive Processing Therapy (Mott et al., 2014). In another study, researchers found Cognitive Processing Therapy treatment effects were not impacted by race (Alvarez et al., 2011).

Two studies found race to influence therapy treatment effects. In a study on Cognitive Processing Therapy, White veterans demonstrated a greater improvement in PCL-S scores (Walter et al., 2014). In a study of both therapies, African American veterans in the Prolonged Exposure group demonstrated a greater improvement of PTSD symptoms than veterans of other ethnicities (Jeffreys et al., 2014).

### **Education**

A veteran's education level could be related to symptom improvement as veterans with less education could show greater symptom improvement due to receiving education on the relationship between thoughts and emotions, which may be a new concept for veterans. However, veterans with more education could also be more likely or interested in completing homework which could improve therapy outcomes. Four studies assessed the possible treatment effects of veterans' education levels. Two of these studies focused on symptom reduction and two studies focused on therapy completion. Researchers found both Cognitive Processing Therapy and Prolonged Exposure completers were more likely to have experienced some form of education after completing high school than veterans who dropped out of the two therapies (Mott et al., 2014). Another study found veterans with less education showed a greater reduction in their PCL-S scores (Walter et al., 2014).

One study found veterans who dropped out of Cognitive Processing Therapy did not differ by education level compared to veterans who did not drop out of Cognitive Processing Therapy. Another study found treatment effects in Cognitive Processing Therapy were not related to education level.

### **Pretreatment Symptom Scores**

Researchers are interested in the impact of pretreatment Posttraumatic Checklist (PCL) and CAPS scores on treatment outcomes to discern if higher scores or more severe PTSD symptoms are related to less symptom improvement. Clinicians also wonder if veterans experience an initial increase in PTSD symptoms after beginning trauma therapy due to starting to focus on the traumatic experience after possibly dealing with PTSD by avoiding thoughts and emotions related to the trauma.

Four studies looked for treatment effects related to pretreatment symptom scores. Two studies found veterans who dropped out did not differ by pretreatment symptom score severity compared to veterans who did not drop out in both Cognitive Processing Therapy (Chard et al., 2010) and Prolonged Exposure (Goodson et al., 2013). One study found veterans' PTSD symptom reduction scores were not influenced by pretreatment symptom scores (Goodson et al., 2013).

Another study found Cognitive Processing Therapy to be equally effective for veterans with both sub-threshold and threshold PTSD diagnoses (Dickstein, Walter, Schumm, & Chard, 2013). Although therapists often expect for symptoms to get worse before getting better, researchers found symptoms were not exacerbated by beginning Cognitive Processing Therapy (Macdonald, Monson, Doron-Lamarca, Resick, & Palfai, 2011). Instead, researchers found symptoms initially decreased quickly after starting Cognitive Processing Therapy, and symptoms then began to decrease more slowly.

### **Treatment Setting and Format**

Another area of interest is the format and setting of the therapy. Cognitive Processing Therapy can be done in multiple formats: group therapy, combined group therapy and individual therapy, and individual therapy. The therapy can also be done without the written trauma account, which is known as CPT- C, as some veterans may not be willing or interested in writing a detailed account of their traumatic experience. Two studies addressed treatment effects of inpatient and outpatient therapy. Researchers found inpatient veterans reported higher symptom severity on both the pre-treatment and post-treatment CAPS measure and the PCL (Walter et al., 2014). Researchers found veterans who had been hospitalized in the past were less likely to complete both therapies (Mott et al., 2014). In another study, veterans who participated in solely

the Cognitive Processing Therapy group were more likely to drop out of treatment than veterans participating in both group and individual Cognitive Processing Therapy (Jeffreys et al., 2014).

### **Alcohol Use**

Clinicians have warned against engaging in therapy while using alcohol, due to beliefs the veteran will not be able to fully process the traumatic experience, nor will the veteran be able to connect with their emotions. Alcohol use is also seen as another form of avoiding the traumatic experience and the emotions related to the experience. One study assessed the influence of alcohol use on Cognitive Processing Therapy. The researchers found veterans diagnosed with an alcohol use disorder attended the same number of sessions and demonstrated a similar reduction in PTSD symptoms (Kaysen et al., 2014). Individuals diagnosed with both PTSD and an alcohol use disorder reported more severe PTSD symptoms at pretreatment assessment.

### **Psychotropic Medication**

Psychotropic medication could help or hinder a veteran's ability to engage in therapy, process traumatic experiences, and connect with emotions. One study looked at the impact of psychotropic medication on success with Prolonged Exposure. Researchers found veterans who were not prescribed psychotropic medication reported a greater improvement in PTSD symptom reduction than veterans who were prescribed psychotropic medication (Goodson et al., 2013).

### **Effect Size**

Researchers use effect sizes to quantify the difference between two groups, such as the experimental and control group (Coe, 2002). The effect size is calculated by subtracting the mean of the control group from the mean of the experimental group and then dividing by the standard deviation of the control group or a pooled standard deviation of both the control and



experimental groups. An effect size of .6 indicates the score of the average person in the experimental group is .6 standard deviations above the average person in the control group. Only one article directly compared the effectiveness of Cognitive Processing Therapy and Prolonged Exposure. Researchers reviewed 517 charts and found that although both therapies reduced Posttraumatic Stress Disorder scores, Prolonged Exposure was more effective after controlling for age, service era, and ethnicity. The effect size for Cognitive Processing Therapy was 0.96 and the effect size for Prolonged Exposure was 2.01 (Jeffreys et al., 2014).

In a study on Cognitive Processing Therapy the effect size after treatment was 1.00 between veterans in the Cognitive Processing Therapy group and veterans in the waitlist group (Monson et al., 2006). In another study comparing veterans who engaged in Cognitive Processing Therapy to veterans on a waitlist to begin therapy, the effect size for change in symptoms was 0.29, which is considered a medium effect size (Macdonald et al., 2011).

Researchers studied veterans who participated in Prolonged Exposure and found a large effect size on .90 from pretreatment to post-treatment PCL scores (Goodson et al., 2013). In a separate small study by Kaysen et al. (2014) of ten veterans who participated in Prolonged Exposure, researchers found the effect size between PTSD symptoms at pretreatment and post-treatment was large ( $d = 2.19$ ).

### **Cognitive Processing Therapy Studies Included**

In the study “Cognitive Processing Therapy for Veterans With Military-Related Posttraumatic Stress Disorder” by Monson et al. (2006) sixty veterans diagnosed with military-related PTSD participated in a wait-list controlled study with Cognitive Processing Therapy. The researchers used the Structured Clinical Interview for DSM-IV, Patient Version (SCID-P),

the PCL, the Beck Depression Inventory (BDI), the Spielberger State-Trait Anxiety Inventory (STAI), and the Trauma-related Guilt Inventory.

The dropout rates were 20% from Cognitive Processing Therapy and 13% from the waiting list. Researchers used random regression analysis of the intention-to-treat sample and found veterans in the Cognitive Processing Therapy group demonstrated a significant reduction in PTSD and comorbid symptoms. Approximately 40% of veterans in the Cognitive Processing Therapy intention-to-treat sample no longer met the diagnostic criteria for PTSD at post-treatment, compared to 3% of veterans in the wait-list group. Veterans in the Cognitive Processing Therapy condition demonstrated significant improvements in re-experiencing and emotional numbing symptoms compared to the wait-list group; however they did not demonstrate improvements in behavioral avoidance and hyperarousal.

Authors of the article “Cognitive Processing Therapy for Veterans with Comorbid PTSD and Alcohol Use Disorders” examined the impact of Alcohol Use Disorders on Cognitive Processing Therapy effectiveness by completing a chart review of 536 veterans diagnosed with PTSD who had participated in at least one session of Cognitive Processing Therapy at a Midwestern VA Medical Center (Kaysen et al., 2014). The researchers used the CAPS, PCL-S, and Beck Depression Inventory-II (BDI-II) to compare symptoms scores. Approximately 49% of veterans in the study reported a current or past Alcohol Use Disorder diagnosis. Veterans were separated into a current Alcohol Use Disorder group, a past Alcohol Use Disorder group, and a no history of Alcohol Use Disorder group.

Veterans attended an average of 9 Cognitive Processing Therapy sessions with no difference between Alcohol Use Disorder groups. Veterans in all three groups demonstrated significant reductions in PTSD symptoms and depressive symptoms. The researchers stated this

study suggests that Cognitive Processing Therapy is well tolerated by veterans diagnosed with PTSD and an Alcohol Use Disorder, and note this is important because the rate of co-occurrence of PTSD and an Alcohol Use Disorder is higher in the veteran population than the general population, which is estimated to be 42%.

Macdonald, Monson, Doron-Lamarca, Resick, and Palfai (2011) researched patterns of symptom change in the article “Identifying Patterns of Symptom Change During a Randomized Controlled Trial of Cognitive Processing Therapy for Military-Related Posttraumatic Stress Disorder.” Sixty veterans diagnosed with PTSD were randomized into two groups. One group began Cognitive Processing Therapy immediately, and the other group waited 10 weeks before beginning the therapy. Researchers hypothesized veterans in the immediate Cognitive Processing Therapy group would experience initial symptom stability followed by decline in symptoms compared to veterans in the second condition, who would demonstrate symptom stability before beginning the therapy. As hypothesized, veterans receiving Cognitive Processing Therapy immediately demonstrated a greater reduction in PTSD symptoms on the Posttraumatic Checklist – Military Version (PCL-M) measure. Veterans demonstrated greater improvements in symptom scores in early sessions, compared with later sessions and at follow-up.

Between the Cognitive Processing Therapy group and the waitlist group, effect sizes were medium for change in PCL-M total ( $p = .29$ ) and avoidance symptoms ( $p = .27$ ). Effortful avoidance was the only self-reported symptom cluster that showed a significant reduction in the therapy group compared to the waitlist group, however, reductions in emotional numbing and hyperarousal symptoms just failed to meet statistical significance levels. The researchers were surprised to find symptom levels reduced more quickly during the beginning

sessions before leveling off during later sessions, as it was noted previous studies demonstrated an initial plateau followed by a stronger decline in symptom severity.

Authors of “Cognitive Processing Therapy for Veterans with Posttraumatic Stress Disorder: A Comparison Between Outpatient and Residential Treatment” researched 992 veterans diagnosed with PTSD who participated in at least one session of Cognitive Processing Therapy in either an outpatient or residential Midwest VA setting (Walter, Varkovitzky, Owens, Lewis, & Chard, 2014). The researchers utilized the CAPS, Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-1), PCL-S, and BDI-II to measure symptoms.

PTSD and Depression symptoms scores improved for veterans who received treatment in both the outpatient setting and residential setting; however, outpatient veterans demonstrated a greater reduction in PTSD symptoms compared to residential veterans. Both groups of veterans showed a similar rate of improvement in depressive symptoms. Patients who received treatment in an outpatient setting reported lower symptom scores at both pre- and post-treatment. Veterans who received service connected disability and were applying for an increase in their service connection rating reported less improvement in PTSD symptoms on the PCL-S and CAPS, and also reported less improvement in depressive symptoms on the BD-II compared with other veterans. Researchers did not find veterans with service connection who were not actively applying for an increase to report less improvement in PTSD and depressive symptoms.

Women reported a greater reduction in symptoms compared to men across time on the CAPS and less educated and White veterans reported greater improvement according on the PCL-S. A limitation of this study is the fact that veterans who participated in therapy in the residential setting received additional therapy and group support compared to veterans who participated in Cognitive Processing Therapy in the outpatient setting.

Chard, Schumm, Owens, and Cottingham (2010) authored the article “A Comparison of OEF and OIF Veterans and Vietnam Veterans Receiving Cognitive Processing Therapy” on differences between 101 Operation Enduring Freedom and Operation Iraqi Freedom veterans and Vietnam veterans who completed at least one session of Cognitive Processing Therapy. Symptom scores were measured with the CAPS, the PCL, and the BD-II.

Operation Enduring Freedom and Operation Iraqi Freedom veterans were found to attend a significantly lower number of therapy sessions than Vietnam veterans. The two groups did not differ on the number of veterans who dropped out of treatment. The two veteran groups did not differ significantly on outcome measures. However, when researchers utilized multivariate models, Operation Enduring Freedom and Operation Iraqi Freedom veterans demonstrated lower posttreatment PTSD CAPS scores than Vietnam veterans after controlling for posttreatment PTSD severity and number of session attended. Researchers noted this may mean Operation Enduring Freedom and Operation Iraqi Freedom veterans may have less severe PTSD after participating in Cognitive Processing Therapy compared to Vietnam veterans. There was a near significant trend for Operation Enduring Freedom and Operation Iraqi Freedom veterans to report lower posttreatment PTSD symptoms than Vietnam veterans. Sixty percent of Vietnam veterans and 41% of Operation Enduring Freedom and Operation Iraqi Freedom veterans met the diagnostic criteria for PTSD at posttreatment, but this was not a significant difference.

In a study by Alvarez et al. (2011), titled “The Comparative Effectiveness of Cognitive Processing Therapy for Male Veterans Treated in a VHA Posttraumatic Stress Disorder Residential Rehabilitation Program,” researchers compared the effectiveness of group Cognitive Processing Therapy to trauma-focused group treatment as usual with 197 male veterans in a residential setting. Researchers used the PCL, BDI, World Health Organization Quality of Life-

BREF, Brief COPE, and the Symptom Checklist - 6 (SCL-6) to compare symptom scores at pre-treatment and post-treatment.

Veterans participating in Cognitive Processing Therapy were found to demonstrate more symptom improvement post-treatment than veterans in the trauma-focused group treatment as usual group. The researchers also found more veterans in the Cognitive Processing Therapy group were classified as recovered and improved at post-treatment. At post-treatment 16.3% of veterans in the Cognitive Processing Therapy group were classified as recovered, 41.3% as improved, 31.7% as unchanged, and 10.6% as deteriorated based on PCL scores. In the trauma-focused group treatment as usual condition, 4.3% were recovered, 37.6% were improved, 38.7% were unchanged and 19.4% as deteriorated.

Older age was correlated with greater reductions in psychological distress according to the SCL-6. Researchers did not find that treatment effects in the Cognitive Processing Therapy condition were impacted by race/ethnicity, marital status, education, income, military service era, branch of military service, service connection rating, or whether the individual was seeking service connection compensation. This study suggests that veterans participating in residential Cognitive Processing Therapy groups may show greater improvements in PTSD and comorbid symptoms, than veterans participating in trauma-focused group therapy. A limitation of this study is the absence of a CAPS measure, and the researchers noted the potential influence that demographics, personality, and other variable may have on self-report measures.

Differences in symptom response to Cognitive Processing Therapy according to symptom scores were studied in the article titled “Comparing Response to Cognitive Processing Therapy in Military Veterans with Subthreshold and Threshold Posttraumatic Stress Disorder” (Dickstein et al., 2013). Researchers used the PCL-S and the CAPS to assess symptom scores. Four

hundred and eighty three veterans participated in the study and researchers found Cognitive Processing Therapy to be an effective treatment for veterans with PTSD diagnostic scores, as well as veterans with subthreshold PTSD symptom scores. This study confirms Cognitive Processing Therapy can be an effective treatment for veterans with different levels of PTSD symptom scores.

### **Prolonged Exposure Studies Included**

The authors of “Prolonged Exposure for PTSD in a Veterans Health Administration PTSD Clinic” completed a small study with veterans who participated in Prolonged Exposure at a VA PTSD clinic (Rauch et al., 2009). Symptoms were measured with the Posttraumatic Diagnostic Scale and the BD-II. Researchers found large effect sizes ( $d = 2.19$ ) of reduction in PTSD symptom scores and depression symptom scores ( $d = 1.31$ ). Fifty percent of veterans who completed Prolonged Exposure no longer met diagnostic criteria for PTSD at post-treatment. No differences were found in symptom reduction scores between Operation Enduring Freedom/Operation Iraqi Freedom veterans and veterans of other service eras.

Half of the veterans worked with therapists who had no past experience with Prolonged Exposure. These therapists included a psychology post-doctoral fellow, a Masters level social worker who obtained licensure during the study, a Masters-level social worker with 7 years of clinical experience, and two psychology doctorate students. Researchers found no differences between veteran scores of those who worked with trainees and those who worked with experienced clinicians.

In “Outcomes of Prolonged Exposure Therapy for Veterans with Posttraumatic Stress Disorder,” researchers studied PTSD and depression symptom improvement in a study of 115 veterans who participated in Prolonged Exposure at a VA Medical Center and its surrounding

clinics (Goodson et al., 2013). Symptoms were measured with the PCL-M, Patient Health Questionnaire – 9 (PHQ-9), and the Behavioral Health Questionnaire-20 (BHQ-20). Researchers found 27% of veterans who began Prolonged Exposure dropped out of therapy, and 84 veterans participated in at least 8 sessions, which was classified as completion of therapy. Veterans who completed therapy were found to be older on average than veterans who dropped out of therapy. There was no impact of ethnicity, sex, trauma, and pretreatment PTSD and depression scores on rates of therapy completion. It was proposed younger veterans may be more likely to drop out of therapy due to increased educational, vocational, and family demands which may make consistent weekly meetings more difficult to attend due to increased time constraints.

As hypothesized, veterans who participated in Prolonged Exposure demonstrated a significant reduction in PTSD and depression symptoms, as well as an improvement in quality of life scores. Both PTSD and depression symptom reduction scores were of large effect sizes, and increases in Wellbeing and Life Functioning scores were also of large effect size. Service connected veterans showed similar improvements in symptom scores to veterans who were not service connected for a mental health disability. Veterans who were prescribed psychiatric medication demonstrated less improvement in PTSD symptom scores compared to veterans who were not prescribed psychiatric medication. The researchers believe veterans who take psychiatric medication may attribute symptom improvement to medication, rather than internal resources, which may impact the veteran's sense of mastery.

Researchers examined the acceptability of Prolonged Exposure therapy in the article “Acceptability of Prolonged Exposure Therapy among U.S. Iraq War Veterans with PTSD symptomology” at the Minneapolis VA Health Care System (Kehle-Forbes, Polusny, Erbes, & Gerould, 2014). The researchers contacted 91 veterans who were found to have PCL-M scores



consistent with Posttraumatic Stress Disorder, which were completed during a three year post-deployment survey. Researchers called the veterans and successfully completed phone interviews with 58 veterans. During the phone interview, a research assistant read a script explaining two available treatments for PTSD, which were Prolonged Exposure and Selective Serotonin Re-uptake Inhibitor medication, the treatment rationale, the evidence base, and the risks of the treatments. Veterans were then asked to select their preferred treatment, either Prolonged Exposure, Selective Serotonin Re-uptake Inhibitor medication, or no treatment, and then were asked to provide the rationale for their choice and any perceived barriers to following through with their preferred treatment option.

Researchers found 53.4% of veterans preferred Prolonged Exposure treatment, 36.2% of veterans preferred Selective Serotonin Re-uptake Inhibitor medication, 8.6% of veterans preferred no treatment, and 1.8% of veterans were unable to decide their preference. Treatment rationale and belief that the treatment would be helpful were the most frequent reasons for Prolonged Exposure preference. Veterans who preferred Prolonged Exposure were also concerned with the credibility and effectiveness of Selective Serotonin Re-uptake Inhibitor medication. Veterans voiced concern that simply being given medication would not suffice in overcoming PTSD. The most frequent reason for choosing medication was past positive experience taking medication for mental health reasons.

The most commonly reported barrier for both treatments was time required to participate in treatment. Veterans were also concerned with their ability to form therapeutic relationships, especially with therapists who had not served in combat zones. This study suggests that Operation Iraqi Freedom veterans perceive Prolonged Exposure as a suitable treatment option for PTSD. Veterans were not provided with other available PTSD options, such as Cognitive

Processing Therapy, which is a limitation of this study. Fewer veterans may have selected Prolonged Exposure if other options were available for the purposes of the study.

Researchers compared the response of veterans with and without mild traumatic brain injuries to Prolonged Exposure in the article titled “Mild Traumatic Brain Injury and Treatment Response in Prolonged Exposure for PTSD” (Sripada et al., 2013). Researchers used the PCL-S to compare symptoms. Researchers found Prolonged Exposure was highly effective for veterans diagnosed with PTSD, and veterans diagnosed with PTSD and a mild traumatic brain injury. Having a mild traumatic brain injury did not impact veterans’ symptom reduction after participating in Prolonged Exposure.

### **Cognitive Processing Therapy and Prolonged Exposure Studies Included**

Researchers compared the effectiveness of Cognitive Processing Therapy and Prolonged Exposure for treatment of PTSD in the article, “Evaluating Treatment of Posttraumatic Stress Disorder with Cognitive Processing Therapy and Prolonged Exposure Therapy in a VHA Specialty Clinic” with a retrospective chart review (Jeffreys et al., 2014). Eighty five charts were reviewed for Prolonged Exposure therapy and 178 charts were reviewed for Cognitive Processing Therapy. Researchers compared scores on the following measures: CAPS, Mini Neuropsychiatric Interview, and PCL.

Veterans in the Cognitive Processing Therapy condition and veterans in the Prolonged Exposure condition both showed significant reductions in PTSD symptom scores, but veterans in the Prolonged Exposure condition demonstrated significantly greater reductions in PTSD symptom scores compared to veterans in the Cognitive Processing Therapy condition. The effect size for Cognitive Processing Therapy was .96, compared to the Prolonged Exposure effect size

of 2.01. The researchers did mention that selection bias may have occurred as treatment type was selected by therapist and patient.

The Cognitive Processing Therapy condition consisted of different delivery formats including individual only, group therapy, and combined individual and group therapy. Researchers found veterans who participated in individual therapy showed a greater reduction in symptoms than veterans in the group therapy format and veterans in the combined format. It was hypothesized that individual therapy allows for enhanced oversight and support for treatment adherence. Older veterans were found to be less likely to drop out of both treatments. African American veterans had a greater treatment response with Prolonged Exposure compared to veterans of other ethnicities. A limitation of this study is the fact that 254 out of 517 charts could not be used for the study due to incomplete PCL data. Data on veterans' psychiatric medication was also not available for review and comparison.

Researchers analyzed characteristics of veterans who begin and complete Prolonged Exposure and Cognitive Processing Therapy in the article "Characteristics of U.S. Veterans Who Begin and Complete Prolonged Exposure and Cognitive Processing Therapy for PTSD" (Mott et al., 2014). A retrospective chart review was conducted for 91 veterans who began or completed Cognitive Processing Therapy and Prolonged Exposure. Researchers found Operation Enduring Freedom/Operation Iraqi Freedom veterans were less likely to complete an evidence-based psychotherapy. Veterans with a history of psychiatric inpatient hospitalization and veterans who had not received additional education after high school were also less likely to complete therapy. Therapy completers did not differ based on ethnicity, gender, religion, income, GAF, suicide risk, or comorbid diagnosis. Two variables were associated with a greater likelihood of

beginning an evidence-based psychotherapy: being service connected for a disability and serving in periods of service other than Operation Enduring Freedom and Operation Iraqi Freedom.

### **Discussion**

The present study explored literature on the different factors that may be related to more successful therapy outcomes with veterans who participated in Cognitive Processing Therapy and Prolonged Exposure, as well as identifying differences in therapeutic outcomes between Vietnam veterans and Operation Enduring Freedom/Operation Iraqi Freedom veterans. This study utilized a systematic review to individually analyze the therapeutic outcomes of the included research studies. Articles were then categorized by themes or factors and analyzed as a collective whole.

### **General Findings**

Thirteen articles met the established inclusive criteria, listed in Table 1, for the present study. Articles were examined for therapeutic effect sizes and factors related to effectiveness of therapy or participation in therapy including: period of service, age, gender, service connection, race and ethnicity, education, pre-treatment symptom scores, setting and format, alcohol use, and medication.

Only one study directly compared Cognitive Processing Therapy and Prolonged Exposure by conducting a chart review (Jeffrey et al., 2014). Although both therapies demonstrated symptom improvement, Prolonged Exposure was found to reduce symptom scores significantly more than Cognitive Processing Therapy. More research needs to be done to directly compare the two therapies so clinicians and veterans have knowledge of the researched effectiveness of the two therapies to make a more informed decision on the type of therapy veterans would like to complete.

Four additional studies listed the effect sizes of symptom reduction. Two studies found Hedge's  $g$  effect sizes of 1.00 and 0.29 when comparing intention-to-treat with Cognitive Processing Therapy samples of veterans to veterans on wait-lists (Monson et al., 2006; Macdonal et al., 2011). Two studies found Cohen's  $d$  (Cohen, 1969) effect sizes of 0.90 and 2.19 comparing pre- and post-treatment symptom scores for intention-to-treat with Prolonged Exposure samples of veterans (Goodson et al., 2013; Rauch et al., 2009). Unfortunately the Cognitive Processing Therapy studies compared symptom scores of intention-to-treat samples of veterans to symptom scores of veterans on the waitlist to begin therapy, while the Prolonged Exposure studies compared veterans' pre-treatment symptom scores to veterans' posttreatment symptom scores, making the comparison in effect sizes less meaningful.

#### **Period of service.**

Two studies found a veteran's period of service had effects on treatment outcomes. Specifically, Operation Enduring Freedom/Operation Iraqi Freedom veterans were less likely to begin Cognitive Processing Therapy and Prolonged Exposure compared to veterans who served in earlier conflicts (Mott et al., 2014). This may mean Operation Enduring Freedom/Operation Iraqi Freedom veterans are less open to the idea of reaching out to mental health professionals for therapy, support, and assistance in managing PTSD symptoms. This is a serious concern, as these veterans may continue to struggle with these symptoms without some sort of mental health intervention. The same study found Operation Enduring Freedom/Operation Iraqi Freedom veterans were less likely to complete both therapies compared to veterans of earlier conflicts. This may be due to additional responsibilities Operation Enduring Freedom/Operation Iraqi Freedom veterans have due to the difference in stage of life compared to veterans from other service eras. Operation Enduring Freedom/Operation Iraqi Freedom veterans may be less likely

to complete an intensive therapy due to having more responsibilities that come along with attending school, having young children, and potentially having less seniority in their careers. These veterans may have a more demanding schedule with less flexibility to attend weekly therapy.

Similarly, other researchers found Operation Enduring Freedom/Operation Iraqi Freedom veterans attended fewer sessions of Cognitive Processing Therapy than Vietnam veterans (Chard, Schumm, Owens, & Cottingham, 2010). Interestingly, although Operation Enduring Freedom/Operation Iraqi Freedom veterans attended fewer sessions, drop-out rates were similar for these veterans and veterans of earlier eras. This may mean that rather than Operation Enduring Freedom/Operation Iraqi Freedom veterans missing a greater number of sessions, Vietnam veterans may have attended additional sessions due to having a greater need, as therapists were allowed to offer additional sessions to veterans demonstrating a continued need for Cognitive Processing Therapy.

Chard, Schumm, Owens, & Cottingham (2010) also found Operation Enduring Freedom/Operation Iraqi Freedom veterans demonstrated less severe CAPS scores after Cognitive Processing Therapy after accounting for severity of pretreatment scores. The researchers believe it may be more difficult to treat Vietnam veterans due to the chronic level of symptomatic disruption these veterans have experienced from living with PTSD for so many years. The researchers suggested using motivational clinical skills with Vietnam veterans with a focus on issues these veterans identify needing support with, such as aging and retirement. In practice, therapists utilizing Cognitive Processing Therapy with Vietnam veterans could ensure veterans are focusing attention on thoughts and emotions related to aging and retirement, as well

as traumatic events. Therapists could work these topics into the modules that focus on power and control, self-esteem, trust, and intimacy.

### **Age.**

Two studies found older veterans were less likely to end therapy before completion. Goodson, Lefkowitz, Helstrom, & Gawrysiak (2013) found veterans who completed Prolonged Exposure were older than veterans who dropped out of the therapy and Jeffreys et al. (2014) found older veterans were less likely to drop out of both Prolonged Exposure and Cognitive Processing Therapy. Younger veterans may have a more difficult time fitting weekly sessions into their work schedules for 12 weeks. Younger veterans also may have younger families with additional responsibilities that arise from parenting young children.

The research was mixed for the impact of age on symptom improvement. Walter, Varkovitzky, Owens, Lewis, & Chard (2014) found younger veterans improved more according to the CAPS, while older veterans improved more on the self-reported PCL-S. This means younger veterans appeared to show greater symptom improvement according to the clinicians, while older veterans rated their own symptom improvements greater than younger veterans rated their symptom improvements. Overall, the research on the impact of age on symptom improvement is not clear or consistent.

### **Gender.**

Only 1 study out of 2 found gender to impact treatment effectiveness. Women showed greater symptom improvement after Cognitive Processing Therapy on the CAPS measure compared to men (Walter et al., 2014). More research needs to be done on the experiences of women in trauma therapy. More women continue to join the service and it is important for clinicians to understand how to best serve this growing minority group. It is possible that

women may have different experiences in combat due to the fact that military culture has a history of excluding women based on gender norms and perceived weakness. Research should also be done on female veterans' perception of emotional support while in combat, to discern if women feel they are able to reach out to others for support, even when their unit is mostly comprised of men.

### **Service connection.**

Veterans apply for service connection benefits when they acquire a medical concern that began during their military service or is thought to be connected in some way to military service. Service connection can range from 0% to 100%, and the veterans receive monthly income and are eligible for different services depending on the percentage of their service connection rating. Veterans are eligible for service connection for mental health diagnoses, such as PTSD, Major Depressive Disorder, or Schizophrenia, when these diagnoses are thought to be related to their service experience.

It is thought some veterans may fear losing their service connection benefits if their condition improves to the point that they are no longer found to have a service connected disability. Mental health providers have also shown concern around the idea that veterans may be hesitant to report improvements in mental health functioning or to allow healing to occur altogether due to their fear of losing income and benefits.

Only one study found symptom improvement treatment effects related to applying for an increase in service connection (Walter et al., 2014). Two studies found Cognitive Processing Therapy treatment effects were not impacted by service connection and 1 study found Prolonged Exposure treatment effects were not related to service connection (Alvarez et al., 2011; Monson et al., 2006; Goodson et al., 2013). These studies demonstrate service connection does not seem



to be a strong force impacting symptom improvement during Cognitive Processing Therapy and Prolonged Exposure; however, veterans applying for an increase in service connection may be less capable of symptom improvement. Clinicians may be over-emphasizing the negative role service connection issues cause in veterans' recovery from PTSD. It seems more likely veterans are genuinely not improving from therapy, than purposefully avoiding recovery to keep a higher service connection rating.

An interesting finding in the study by Mott et al. (2014) was veterans who were service connected were more likely to begin Cognitive Processing Therapy or Prolonged Exposure. This may mean these veterans feel validated by their service connection status. These veterans may be more likely to understand, after the validation from their service connection approval, they are struggling with a serious medical concern which may improve with clinical treatment. This is an important consideration, as there should be more of a focus on encouraging veterans struggling with PTSD to begin therapy, as research shows Cognitive Processing Therapy and Prolonged Exposure are effective in reducing PTSD symptoms.

### **Race and ethnicity.**

Veterans of different ethnicities may have different experiences in combat due to a variety of reasons, including being part of a minority group or having different cultural beliefs regarding war. Veterans from different cultural groups may also have different perspectives on the cause of mental health concerns, and differing levels of comfort in engaging with mental health providers. Researchers found White veterans demonstrated a greater level of symptom improvement according to the PCL-S (Walter et al., 2014). Interestingly, researchers of Prolonged Exposure and Cognitive Processing Therapy found African American veterans showed greater symptom improvement in the Prolonged Exposure group than veterans of other

ethnicities (Jeffreys et al, 2014). More research should be done to disseminate why Black veterans seemed to benefit from Prolonged Exposure more than Cognitive Process Therapy. A qualitative study on Black veterans' experiences with the two therapies would deepen our understanding of this finding. These findings are important for clinicians to share with veterans when talking about the trauma therapy options.

### **Education.**

A veteran's education level is of interest due the possibility veterans with less education may have more room for improvement and learning of new concepts in therapy, or the idea veterans with more education may have more experience being a student. Both therapies require homework completion, so veterans with more experience or interest in being a student may have more skills or interest in successfully completing homework. The research seems to support both of these ideas, as veterans who completed both Cognitive Processing Therapy and Prolonged Exposure were more likely to have engaged in some type of education after high school than veterans who terminated therapy before therapy completion (Mott et al., 2014). Veterans with less education experience demonstrated a greater reduction in their PCL-S scores (Walter et al., 2014).

### **Pretreatment symptom scores.**

Clinicians often warn veterans and providers that upon entering treatment veterans' symptoms may initially worsen due to focusing and processing the trauma. However, Macdonald et al. (2011) found symptoms are more likely to initially decrease after beginning Cognitive Processing Therapy. After symptoms quickly decrease initially, symptoms then level off and begin to decrease more slowly and consistently. This could be due to learning how thoughts influence emotions in the initial sessions of Cognitive Processing Therapy. Veterans

may learn they have more control over their thoughts and emotions than they previously believed.

Veterans often initiate therapy with subthreshold PTSD symptom scores according to the PCL-5. Clinicians may wonder if therapy will be beneficial or worthwhile for these veterans who have less room for improvement as they already are classified as having a symptom score inconsistent with PTSD. Dickstein et al. (2013) found Cognitive Processing Therapy to be equally effective for veterans with both threshold and subthreshold PTSD symptom scores. This research should encourage clinicians to recommend Cognitive Processing Therapy for veterans who report they are struggling with PTSD, but have subthreshold symptom scores. The research study shows these veterans with lower PCL-5 scores are just as likely as veterans with higher scores to benefit from the therapy. This is important, because veterans with subthreshold PCL-5 scores who are reaching out to mental health professions for help most likely truly need the help. These veterans should not be turned away simply because their symptoms may appear less severe according to the scoring of the PCL-5.

#### **Substance use and psychotropic medication.**

Clinicians encourage veterans to abstain from drinking alcohol or using drugs during therapy as this use is seen as another form of avoidance of the traumatic memory. Some clinicians believe veterans may be less capable of experiencing genuine emotions and thoughts while under the influence of alcohol or drugs. Clinicians also point out veterans may be less capable of processing and moving forward with difficult thoughts and emotions when thinking may be altered due to alcohol and drug use. Clinicians may be weary to begin therapy with veterans with substance use disorder due to these common beliefs.

Veterans with both PTSD and Alcohol Use Disorder diagnoses attended the same amount of sessions and demonstrated an equal reduction in PTSD symptoms compared to veterans with solely a PTSD diagnosis (Kaysen et al. 2014). These findings are encouraging, as it appears veterans with Alcohol Use Disorders can still benefit from Cognitive Processing Therapy and these veterans should not be automatically excluded from beginning therapy. Clinicians should still consider veterans who use alcohol for Cognitive Processing Therapy. It should not be a requirement for veterans to quit using alcohol in order to begin therapy, as this may make it less likely for veterans to begin treatment and this has not found to be necessary for symptom improvement.

Psychotropic medication, which changes chemical balances in the brain to impact mood and behavior, was found to influence the effectiveness of Prolonged Exposure. Veterans who were not prescribed psychotropic medication reported a greater reduction in PTSD symptoms compared to veterans who were prescribed psychotropic medication. The reasoning for this is unknown; however, veterans who are prescribed psychotropic medication may struggle with managing mental health symptoms more than veterans who are not prescribed medication. Another possibility is veterans who are taking medication may be less able to identify and connect with thoughts and emotions, which could influence their ability to process the traumatic event and move forward.

### **Limitations of the Present Study**

A limitation of this study is the fact that only thirteen studies met this study's inclusion criteria. This is due to the limited amount of research that has been published on Cognitive Processing Therapy and Prolonged Exposure with veteran populations. Both therapies are relatively new treatments for veterans, as well as other populations that have experienced trauma.

Research was especially limited on direct comparisons of the effectiveness of the two therapies, as only one study made this comparison. Fortunately, research at the Minneapolis VA Health Care System is currently comparing the effectiveness of the two therapies with 900 female and male veterans who experienced a traumatic military event (Comparative Effectiveness Research in Veterans with PTSD, n. d.). This research will improve knowledge on the comparative effectiveness of these two therapies.

### **Research Implications**

It is imperative for more research to be done on the effectiveness of Cognitive Processing Therapy and Prolonged Exposure so Veterans have the necessary information to make an informed decision on the type of therapy in which they would like to engage. Specifically, research should focus on direct comparisons of the two therapies, factors that increase or decrease effectiveness and participation, and veterans' unique experiences and perspective of the two therapies.

Surprisingly no research assessed veterans' perspectives during and after completing therapy. It would be beneficial to know which aspects of the therapies seemed most helpful to veterans and to learn of their overall beliefs of the effectiveness. Knowing which aspects of the treatment commonly turn veterans away would allow clinicians the opportunity to talk about specific concerns or to be more flexible in their practice. This information could help shape therapy in the future to be more helpful or appealing to veterans and also may help encourage hesitant veterans who are contemplating beginning therapy.

It is crucial to research the impact of age and period of service on treatment effectiveness and attendance. Research demonstrated younger veterans were more likely to terminate therapy before therapy completion (Goodson et al., 2013; Jeffreys et al., 2014). This could mean

younger veterans are not finding the therapies appealing or helpful. Younger veterans may live with chronic PTSD symptoms for the rest of their lives if they are terminating therapy early and not getting support or help with their mental health symptoms. With younger veterans continuing to return from combat, it is important for providers to understand how to best engage these veterans to encourage treatment initiation and completion.

The impact of a veteran's gender on therapy effectiveness is also an important research need, as women are the fastest growing minority group in the service. Much of the research has focused on men; however, it is important to research female experiences of trauma and therapy as it may differ from male experiences due to minority status as well as the military's culture favoring masculinity. Many studies had a minimal amount of female participants, so more effort will need to be put forward to recruit female veterans to learn about their experiences of trauma and therapy.

Many veterans use alcohol as a form of avoidance or a way to cope with their PTSD symptoms. More research should address the best way to help these veterans who are not prepared to stop using alcohol, but are ready to begin trauma therapy. Research should also address why veterans with previous psychiatric hospitalizations are less likely to complete Cognitive Processing Therapy and Prolonged Exposure, as well as how to support these veterans who may have more severe PTSD or comorbid symptoms. Veterans prescribed psychotropic medication may also need additional supports to be successful in therapy, and research should identify what more can be done to support these veterans to have more success with Cognitive Processing Therapy.

Overall, the research on Prolonged Exposure and Cognitive Processing Therapy is surprisingly minimal, considering these therapies are our nation's main treatments for our service

members struggling with PTSD. More research on these therapies should be a priority so our nation can adequately care for and support our veterans who return from war.

### **Practice Implications**

This research leads to several practice implications social workers should consider regarding treatment effectiveness and participation. The only study to directly compare Cognitive Processing Therapy to Prolonged Exposure found that both therapies were effective in reducing PTSD symptoms; however, Prolonged Exposure appeared to be more effective in reducing PTSD symptoms. More research needs to be done to confirm Prolonged Exposure as a more effective treatment, and veterans should still be given a choice after talking with a clinician about the theories behind the two therapies and the general topics covered in each therapy to decide which treatment seems to fit their beliefs, needs, and preferences.

Social workers should keep in mind unique military culture characteristics when working with the veteran population. Social workers should keep current with the types of weapons that are being used in conflicts to be able to better assess the severity of exposure to trauma (Suris & North, 2011). In the more recent conflicts, Improvised Explosive Devices have been predominantly used, whereas SCUD missile attacks were more common during the Gulf War. It is helpful for clinicians to have background knowledge of the weapons used and common experiences with specific weapons to be able to have helpful conversations regarding these experiences.

Social workers should also be sensitive to common experiences of guilt after killing in war, ingrained behaviors after rigid military training, and difficulties with adjustment after lengthy and repeated deployments. Although war involves intentionally killing other human beings, this intentionality does not make the event less traumatic or less difficult for the person to

accept. Social workers should also remember that Operation Enduring Freedom/Operation Iraqi Freedom veterans may have had longer deployments or repeated deployments, which may lead to more difficulties in adjusting upon return to the United States and may add additional complexities for the veteran working to recover from Posttraumatic Stress Disorder.

Social workers may consider sharing the research that African American veterans showed greater symptom improvement after Prolonged Exposure than White veterans (Jeffreys et al., 2014), while White veterans showed more symptom improvement than Black veterans with Cognitive Processing Therapy (Walter et al., 2014). Again, it is important for researchers to allow veterans to consider and research both therapies to learn of the theories and methods behind the therapies that the veterans identify with.

Social workers should be mindful of the possibility that younger veterans may have a more difficult time attending weekly therapy due to the responsibilities that may be associated with their stage in life. Clinicians should discuss this concern and assist younger veterans in problem solving to attend an hour of therapy each week for 12 weeks. This may involve identifying support persons to assist with childcare, or working with employers to allow for the time off necessary to attend therapy. Providers should also consider having evening or weekend therapy time slots for veterans with less flexibility in their weekly schedules.

Social workers can also continue to see veterans diagnosed with a mild traumatic brain injury for Prolonged Exposure, as this disability does not seem to impact veterans' success in reducing PTSD symptoms (Sripada et al., 2013). Similarly, social workers can continue to recommend Cognitive Processing Therapy for veterans who have a comorbid Alcohol Use Disorder diagnosis (Kaysen et al., 2014). Social Workers do not have to exclude these veterans from therapy until they discontinue or reduce their alcohol use. Social Workers can also



continue to see veterans with sub-threshold PTSD symptom scores, as these veterans can experience similar symptom reduction to veterans with threshold PTSD symptom scores (Dickstein et al., 2013). Veterans with sub-threshold PTSD symptom scores who are reaching out to mental health professionals most likely are in need of therapy and support, and will most likely benefit from therapy.

This review of the available literature has shown both Cognitive Processing Therapy and Prolonged Exposure are effective treatments for veterans struggling with PTSD. These therapies should continue to be recommended for veterans struggling with PTSD. Researchers and clinicians must continue to research and provide effective treatment for our veterans who return to the United States with PTSD after serving our country. Our veterans certainly deserve the best care available, and this can only be accomplished by improving the effectiveness of therapy and the attendance of therapy. By conducting research on the effectiveness of therapy, as well as veterans' perspectives of therapy and barriers to attending therapy, social workers can improve mental health outcomes for those who served the United States of America.

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Table 1.

*Search Terms and Inclusion Criteria*

Search Terms	Inclusion Criteria	Exclusion Criteria
Cognitive Processing Therapy & veteran	Title or abstract includes the words Cognitive Processing Therapy & veteran	Entire focus of article is military sexual trauma
Prolonged Exposure & veteran	Title or abstract includes words Prolonged Exposure & veteran  Article is peer reviewed  Article is authored by government agency	Article studies another nation's veteran  Article is not peer reviewed or authored by government agency



Table 2

*Data Abstraction Form*

Author(s)	Therapy & DSM Version	Veteran Era	Findings	Factors impacting effectiveness
Monson, Schnurr, Resick, Friedman, Young-Xu, Stevens  2006	CPT	Mixed	Wait-list controlled trial. 54 men, 6 women. 40% did not meet PTSD criteria and 50% had a reliable change in symptoms at posttreatment assessment. Depression, anxiety, affect functioning, guilt distress, social adjustment also improved.	
Kaysen, Schumm, Pedersen, Seim, Bedard-Gilligan, Chard  2014	CPT	Mixed	Chart Review of 536 veterans diagnosed with PTSD to study treatment differences in veterans with alcohol use disorder. 11% in current alcohol use disorder group, 39% in past alcohol use disorder group, 51% in no history of alcohol-use disorder.  Significant reductions in PTSD and depression following treatment for all groups.  Comorbid veterans reported more severe initial PTSD symptoms.	CPT was well tolerated in all three groups.  No difference in attendance of sessions between groups.
Macdonald, Monson, Doron-Lamarca, Resick, Palfai  2011	CPT	Mixed	Studied patterns of symptom change with randomized controlled trial. 60 veterans assigned to CPT or wait-list. Self-reported PTSD symptoms declined in CPT group.	CPT reduced self-reported symptoms of effortful avoidance.  CPT just failed to meet statistical significance levels of reduction in emotional numbing and hyperarousal.
Walter, Varkovitzky, Owens, Lewis, Chard  2014	CPT	Mixed	514 outpatient and 478 inpatient veterans received CPT. Symptom scores improved for both groups, with inpatient veterans reporting higher symptoms scores at beginning and end of therapy.	On PCL-S less educated and white patients reported greater improvement. On the CAPS, women reported more improvement compared to men. Veterans applying for increase in service connection disability rating reported less improvement in PTSD and depressive symptoms.
Chard, Schumm, Owens, Cottingham		Compared Vietnam vs. OEF/OIF	101 Veterans (51 OEF/OIF, 50 Vietnam) who attended at least one session of CPT.	OEF/OIF veterans attended a significantly lower number of sessions than Vietnam veterans. Groups did not

2010				differ on dropouts. 60% of Vietnam veterans met PTSD criteria at posttreatment compared to 41% of OEF/OIF veterans (near significant).
Alvarez, McLean, Harris, Rosen, Ruzek, Kimerling 2011	CPT	Mixed	104 veterans received CPT and 93 received trauma-focused group treatment as usual. Researchers compared scores on PCL, BDI, brief COPE, World Health Organization Quality of Life-Bref, and SCL-6. Veterans treated with CPT evidenced more improvement in PTSD symptoms, depression symptoms, psychological quality of life, coping, and psychological distress than the treatment as usual group.	In CPT cohort, older age was associated with greater reductions in psychological distress. Treatment effects in CPT group were not influenced by race/ethnicity, marital status, education, income, period of military service, branch of military, or whether the individual was seeking disability compensation.
Goodson, Lefkowitz, Helstrom, Gawrysiak 2013	PE	Mixed	115 veterans were enrolled in PE at a VA Medical Center with 84 completing treatment. Researchers compared scores on PCL-M, PHQ-9, BHQ-20. Participants experienced a 42% reduction in PTSD symptoms (averaged 19 point drop on PCL), 31% reduction in depression symptoms, and an increase in quality of life.	Veterans not prescribed psychotropic medication reported greater reduction in PTSD symptoms than veterans prescribed medication. Individuals who dropped out of PE tended to be younger.
Rauch, Defever, Favorite, Duroe, Garrity, Martis, Liberzon 2009	PE	Mixed	10 veterans were treated with PE. Researchers compared PDS and BDI-II scores. Veterans reported a decrease in PTSD (effect size $d=2.19$ ) and depression symptoms from pre-treatment to post-treatment.	
Kehle-Forbes, Polusny, Erbes, Gerould 2014	PE	OEF/OIF	Researchers sampled 58 Iraq War veterans with PTSD on if they would prefer PE, antidepressant, or no treatment. 53.4% said they would choose PE, 36.2% said they would prefer an antidepressant, 8.6% chose no treatment, and 1.8% were unable to choose an option.	The most commonly cited barrier for PE was time to participate (77.4% of those who did not choose PE).
Jeffreys, Reinfeld, Nair, Garcia, Mata-Galan, Tenz 2014	CPT and PE	Mixed	517 charts were reviewed retrospectively at a VA – Medical Center, and analyses included 178 charts for CPT and 85 charts for PE. Researchers compared PCL scores. Veterans were assigned to CPT or PE as based on therapist and patient preference.	Veterans receiving both CPT and PE demonstrated reduction in PTSD symptoms, but PE (effect size 2.0) reduced scores significantly more than CPT (effect size .96). CPT drop-out rate was 32.2% and PE

				<p>drop out was 44%. Veterans older than 50 were less likely to drop out of both therapies.</p> <p>For PE subjects, African Americans had a greater decrease in post-PCL scores as compared to white veterans. OEF/OIF veterans OND veterans had a 4.87 greater drop in PCL scores as compared to veterans of other service eras for CPT.</p>
<p>Mott, Mondragon, Hundt, Beason-Smith, Grady, Teng</p> <p>2014</p>	CPT and PE	Mixed	<p>Researchers identified all patients (796) in a VA PTSD and anxiety clinic who attended at least one therapy appointment with 1 of 8 providers trained in evidence based practice (CPT and PE). 91 charts of patients who began CPT and PE were reviewed retrospectively. 91 patients(11.4%) began an evidence based practice and 59 patients (7.9%) completed the full course of therapy.</p>	<p>OEF/OIF veterans were less likely to begin an evidence based practice (PE or CPT) than veterans from other service areas. Veterans who were service connected for PTSD were more likely than veterans without service connections to begin an evidenced based therapy. Of the veterans who began therapy, OEF/OIF veterans and veterans with a history of psychiatric hospitalization were associated with decreased likelihood of completing an evidence based therapy.</p>
<p>Sripada, Rauch, Tuerk, Smith, Defever, Mayer, Messina, &amp; Venners</p> <p>2013</p>	PE	Mixed	<p>Researchers studied 51 veterans with or without a history of a mild traumatic brain injury in a naturalistic sample. Researchers did not find an effect for mild traumatic brain injury.</p>	<p>PE may also be helpful for veterans with PTSD and a history of mild traumatic brain injury.</p>
<p>Dickstein, Walter, Schumm, &amp; Chard</p> <p>2013</p>	CPT	Mixed	<p>Researchers studied 51 veterans with subthreshold PTSD at pretreatment and 483 veterans with threshold PTSD. Both groups experienced a decrease in PTSD symptoms with no between-groups differences after controlling for pretreatment severity.</p>	<p>CPT with veterans with subthreshold PTSD symptom scores may be just as helpful as CPT with veterans with threshold symptom scores.</p>