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## The Effectiveness of PTSD Treatment on Symptoms of PTSD and Depression in Military Veterans

Kylene E. Occhietti  
*St. Catherine University*

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The Effectiveness of PTSD Treatment on Symptoms of PTSD and Depression  
in Military Veterans

Submitted by Kylee E. Occhietti

MSW Clinical Research Paper

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 their findings. This project is neither a Master's thesis nor a dissertation.

School of Social Work  
St. Catherine University & University of St. Thomas  
St. Paul, Minnesota

Committee Members:  
David Roseborough, PhD., (Chair)  
Glen Palmer, PhD., ABN  
Jackie Wright, LICSW

## Abstract

The military veteran population has received national attention for the struggles some of its members have had with posttraumatic stress disorder (PTSD). Currently, PTSD is treated within the VA using a number of pharmacologic and/or psychotherapeutic interventions in residential and outpatient settings. The purpose of this research project was to learn more about PTSD treatment by conducting a program evaluation of therapies offered in a VA PTSD program. A non-probability sample of 124 veterans who participated in a VA residential PTSD program in the mid-western United States between 2006 and 2009 was used to determine the effectiveness of Cognitive Processing Therapy (CPT), Prolonged Exposure Therapy (PE), and Eye Movement Desensitization and Reprocessing Therapy (EMDR) on PTSD and depression symptoms over time. Each therapy provided resulted in decreased symptomatology of PTSD and depression from pre- to post-treatment, with no therapy showing greater efficacy over the others. However, at 6- and 12-month follow-up measurements, PTSD and depression symptoms increased to approach pre-treatment values for all therapies examined in this project. The future direction of research, practice, and policy surrounding PTSD treatment must be further examined to consistently provide competent, effective care to every veteran served by the VA.

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The military veteran population, having endured conflicts of war to secure the freedom of the United States, has received national attention for the struggles some of its members have had with posttraumatic stress disorder (PTSD). In retrospect, PTSD has been acknowledged in military and veterans service arenas since the 1670s, when Swiss military doctors referred to it as “nostalgia.” Since that time, other names have developed for this disorder, including “exhaustion,” “soldier’s heart,” “the effort syndrome,” “shell shock,” “combat fatigue,” “battle fatigue,” and “Post-Vietnam Syndrome,” before arriving at “Posttraumatic Stress Disorder” in 1980 (Vietnam Veterans of America [VVA], 2007). Today, PTSD is characterized by symptoms of re-experiencing, hyperarousal, and avoidance to stimuli that remind one of a traumatic event(s) he or she has experienced (e.g., military combat, rape, being witness to the violent death of a friend or family member; Dworkin, 2003).

For those veterans who have served in Operations Enduring Freedom and Iraqi Freedom (OEF/OIF), approximately 15% or more have developed PTSD (Shiner, 2011), compared to 30% and 26%, respectively, of male and female Vietnam war veterans, approximately 10% of Gulf War veterans, and 8% of veterans deployed to Somalia (Friedman, 2005). Between 1999 and 2004, the number of veterans reporting PTSD increased from 120,265 to 215, 871. During this same time period, veterans’ compensation for suffering from PTSD as a result of their military duties rose from 1.72 to 4.28 billion dollars (Committee on Veterans’ Compensation for PTSD, 2007; Institute of Medicine [IOM] & National Research Council, 2007).

Based on the rising cases and mental and physical health costs of PTSD (Shiner, 2011), Congress has allotted considerable funding to the Department of Veterans Affairs (VA) and the Department of Defense (DOD; Levin, 2011). The VA has used its portion of this funding to research and provide the best care available to its veterans. Currently, PTSD is treated within the

VA using a number of pharmacologic (e.g., selective serotonin reuptake inhibitors and serotonin-norepinephrine reuptake inhibitors) and/or psychotherapeutic (e.g., cognitive behavioral therapy [CBT], brief psychodynamic psychotherapy, and family and group therapy) interventions in residential and outpatient settings (Sharpless & Barber, 2011; National Center for PTSD [NCPTSD], 2010). More recently, PTSD treatment programs offered by the VA have focused on two evidence-based CBT treatments that have been shown to be very successful in treating PTSD: Cognitive Processing Therapy (CPT) and Prolonged Exposure (PE; NCPTSD, 2010).

Studies have generally shown that CPT and PE are both effective therapies. Rauch et al. (2009), for example, found that PE therapy significantly reduced total PTSD symptoms in veterans (i.e., those from different conflicts and those who experienced military sexual trauma or MST) with chronic PTSD from pre- to post-treatment. A study of veterans who completed a PTSD treatment program in a VA residential setting supported both CPT and Eye Movement Desensitization and Reprocessing (EMDR) as effective therapies for veterans, based on pre- and post-treatment results of several test measures (Graca, Palmer, & Occhietti, 2012). Eye Movement Desensitization and Reprocessing therapy has been deemed effective in the reduction of PTSD symptoms in civilian, military, and veteran populations, with outcomes similar to those of exposure-based therapies. The 2010 treatment guidelines for the VA and DOD also recommended EMDR, though these same guidelines questioned the theoretical and empirical grounding of its more unique components (Sharpless & Barber, 2011; VA/DOD, 2010). And, as reported by Devilly, Spence, and Rapee (1998) in their study of combat veterans with PTSD, the eye movement procedure used in EMDR is most likely not the mechanism of change in PTSD symptoms; rather, other factors, such as the imaginal exposure process of EMDR, may be the impetus for symptom improvement. For these reasons, studies continue to research the

effectiveness of this therapy while it is offered in variation at some VA facilities (NCPTSD, 2010). Currently, however, CPT and PE remain the most widely disseminated therapies with the VA (Sharpless & Barber, 2011; VA/DOD, 2010).

The knowledge base for the effectiveness of various PTSD treatments offered in VA settings is still transforming and expanding. In fact, the IOM, at the request of the DOD, is currently conducting a study of all PTSD treatments offered at VA and DOD facilities to determine the best method(s) for screening, prevention, treatment, and rehabilitation of active duty military personnel and veterans with PTSD (Levin, 2011). Current literature suggests many veterans, especially females, present to VA Primary Health Clinics with physical complaints, which may be the result of or include underlying mental health issues (Friedman, 2005; Shiner, 2011). Consequently, symptoms of PTSD or other mental health disorders veterans have can go undetected by clinicians. However, changes within the VA, such as the integration of primary care and mental health departments, has greatly improved this screening process (Sadler, Booth, Nielson, & Doebbeling, 2000; Valente & Wight, 2007). Additional studies indicate there are several factors which may influence veterans' participation in and completion of PTSD treatment, including severity of PTSD symptoms, health, family and work commitments, motivation for change, and family involvement/social support before, during, and after treatment (Kutter, Wolf, & McKeever, 2004; Batten et al., 2009).

These research findings show there is currently a strong evidence-based understanding of the ways in which PTSD can be treated within the veteran population but additional research is needed. For example, Chard, Schumm, Owens, and Cottingham (2010) suggest OEF/OIF and Vietnam veterans respond differently to treatment and, therefore, future studies should examine multiple variables related to when veterans served in the military. And, of the sources reviewed

for this project, only one involved a study in which a 5-year follow-up of the treatment effects of cognitive therapy and imaginal exposure on chronic PTSD was conducted; cognitive therapy was found to be more effective in maintaining alleviation of PTSD symptoms (Tarrier & Sommerfield, 2004). Future studies can expand the depth and breadth of understanding of PTSD treatment, thereby informing clinicians about the most effective care available to veterans.

The purpose of this research project was to learn more about PTSD treatment by conducting a program evaluation of the therapies (i.e., CPT, PE, and EMDR) offered in a VA residential PTSD program. The progression of symptoms, as measured by test scores obtained before, immediately after, and 6 and 12 months after completion of the PTSD program, were examined using a secondary quantitative data analysis. Particular attention was given to how treatment outcomes are affected by and/or correspond to the following variables: age, gender, ethnicity, and type of treatment received in the PTSD program. This method, in turn, provided insight into the following research question that was posed for this project: How does a PTSD program offered through the VA affect symptoms of PTSD and depression in veterans who have completed treatment?

## **Literature Review**

Subjection to traumatic events, such as abuse, combat, death, and natural disasters, can lead one to develop symptoms of PTSD, which, as mentioned earlier, are categorized as re-experiencing, emotional numbing and avoidance, and hyperarousal. This mental health disorder is especially pronounced in military veterans. It is common for veterans to present to VA primary health facilities with co-morbid physical and mental health conditions. In response to this trend, the VA currently offers an array of psychopharmacological and psychotherapeutic treatments. However, further research of current treatment options for PTSD with different study populations will increase the quality of care available to veterans and civilians alike.

### **PTSD**

**Etiology.** A thorough explanation of PTSD provides a point of reference for understanding the experiences of veterans, as well as military personnel and civilians, diagnosed with this disorder. Resulting from both manmade and natural events, PTSD "...shock[s] the psychological system and violate[s] core assumptions that life is predictable, safe and secure" (Sharpless & Barber, 2011, p. 8). According to the VVA (2007), PTSD is an anxiety disorder that surfaces after experiencing a very dangerous, uncontrollable, and frightening event, such as a car wreck, sexual assault, terrorist attack, military combat, tornado, hurricane, or earthquake.

Chard et al. (2010) found OEF/OIF and Vietnam veterans differed in their likeliness to develop PTSD, based on the type of warfare they were subjected to and the type of homecoming they received once they returned to the United States (i.e., Vietnam veterans were treated with disdain when they returned and most OEF/OIF veterans have been greeted by celebrations and recognition). Additional factors that can affect the likelihood of veterans developing PTSD are active duty pre-deployment concerns about family and life disruption, pre-deployment

personality and trauma history, previous combat exposure, post-deployment social support and stressors, gender, race, and military rank (Erbes & Polusny, 2009).

**Diagnosis.** A diagnosis of PTSD is typically made by evaluating an individual for the presence of PTSD symptoms. The symptoms are categorized into three groups: a) re-experiencing symptoms, such as recurrent and distressing recollections of the event, recurrent dreams of the event, or feeling that the event is happening again in the form of hallucinations or dissociative flashbacks; b) avoidance symptoms, such as emotional numbing and making efforts to avoid places and people that are reminders of the event; and c) hyperarousal symptoms, such as exaggerated startle response, hypervigilance, and difficulty falling or staying asleep (Dobie et al., 2002; American Psychiatric Association [APA], 2000). These symptoms can be: a) acute, usually lasting one to three months after the traumatic event, b) chronic, usually lasting three or more months after the traumatic event, and/or c) have a delayed onset, with at least a 6-month lapse between the traumatic event and the onset of symptoms (VVA, 2007).

Research using brain imaging has revealed people suffering from PTSD exhibit similar anomalies in brain function and structure. These include altered psychophysiological reactivity, hormonal balance, cognitive processing, and memory function (Friedman, 2005). Van der Kolk's (2006) research supplements these findings. He determined ". . .that when people are reminded of a personal trauma[,] they activate brain regions that support intense emotions, while decreasing activity of brain structures involved in the inhibition of emotions and the translation of experience into communicable language" (p. 2). Georgopoulos et al. (2010) supplemented these findings through their study of neural activity and communication patterns in the brain's cerebral cortex. They concluded, through the use of magnetoencephalographic (MEG)

recordings, differences in brain function can be discerned for individuals with PTSD as opposed to those without this disorder.

In addition to emotional distress, family, marital, and social functioning are compromised (Friedman, 2005). According to Batten et al. (2009), those who develop PTSD are more likely to have reduced intimacy with partners, expressions of hostility, poor communication skills, a lowered ability to resolve personal conflict, and child rearing difficulties. Solomon, Debby-Aharon, Zerach, and Horesh (2011) also found that severity of PTSD symptoms tend to be negatively correlated with marital adjustment and parental functioning.

**Prevalence.** Studies using national VA administrative data have revealed a consistent rise in PTSD over time among OEF/OIF veterans, from 0.2% in 2003 to 21.8% in 2005 (Seal et al., 2009). Additionally, 26% to 30% of Vietnam veterans, approximately 10% of Gulf War veterans, and 8% of veterans deployed to Somalia have developed PTSD. Specifically, those with injuries resulting from combat were and are more likely to develop PTSD (Friedman, 2005).

In comparison to the veteran population, approximately 8% of the civilian population is affected by PTSD during its lifetime, as are 33% to 50% of numerous study samples marked by some type of trauma (Schottenbauer, Glass, Arnkoff, Tendick, & Gray, 2008). For example, Resnick, Kilpatrick, Dansky, Saunders, and Best (1993) found that, of those who suffered civilian rape, approximately 32% had lifetime PTSD and about 12% had current PTSD. These percentages were almost identical for victims of some type of sexual assault other than rape (i.e., 31% with lifetime PTSD and 12% with current PTSD).

Females, whether in the military/veteran or civilian population, have also been correlated with the presence of PTSD symptoms, due to vulnerabilities they face (e.g., different types of abuse) as children and adults (Dobie et al., 2002). However, even though female veterans have

reported higher rates of trauma exposure than the civilian population and are more likely than male veterans to experience sexual assault while in the military, they are equally or less likely than male veterans to meet criteria for PTSD (Zinzow, Grubaugh, Monnier, Suffoletta-Maierie, & Frueh, 2007). Other research has revealed mixed findings regarding differences in PTSD between male and female veterans, though female veterans have tended to show less resilience to PTSD than their male counterparts (Kimerling, Gima, Smith, Street, & Frayne, 2007).

The tragedy from which PTSD develops can literally happen to anyone as the result of an array of factors. However, veterans, both male and female, are at an especially high risk of experiencing PTSD symptoms, due to combat exposure and MST. And, because these symptoms can be very detrimental to personal, social, and occupational functioning, the VA serves as an important resource for veterans with PTSD.

### **Presentation of PTSD in VA settings**

**Primary health care facilities.** It is more common for veterans experiencing PTSD symptoms to present to primary health clinics to seek medical, rather than mental, health care (Friedman, 2005). According to Frayne et al. (2011), male and female OEF/OIF veterans with PTSD who use VA facilities are more likely than veterans without a mental health diagnosis to suffer from one or more medical illnesses, including lumbosacral spine disorders, lower extremity joint disorders, headaches and hearing problems. Additionally, women who have PTSD as a result of MST and/or military combat commonly seek VA Primary Health services for physical problems (e.g., gynecological, digestive) that are related to their trauma (Himmelfarb, Yaeger, & Mintz, 2006). Zinzow et al. (2007) have suggested VA Primary Health clinics can benefit from expanding their mandated screen for MST to include lifetime

experiences and trauma-related symptoms, thereby connecting more veterans, especially those with PTSD, to the appropriate mental health services.

**Co-morbid conditions.** As mentioned above, PTSD is commonly associated with MST. However, there are also other conditions with which PTSD is associated. For example, Zinzow et al. (2007) reported that female veterans diagnosed with PTSD can have such co-occurring disorders as depression, anxiety, and substance use. Hypertension, cardiovascular disease, and sleep disorders are other illnesses that can be experienced by anyone – military, veteran, or civilian – with PTSD (VVA, 2007). Schottenbauer, Glass, Arnkoff, Tendick, and Gray (2008), in their review of non-response and dropout rates in outcome studies on PTSD, found that homelessness and unemployment are common among veterans with PTSD, as well as other populations. The NCPTSD (2010) has also noted conditions co-occurring with PTSD include Acute Stress Disorder, Panic Disorder, self-harm/suicide, and traumatic brain injury.

Co-morbidities, which can accompany PTSD, make it a complex disorder to diagnose. Veterans may present at VA Primary Care clinics to treat their physical symptoms; this is an ideal place to treat illnesses like hypertension and cardiovascular disease as reported by the VVA (2007) and mentioned above. However, the possibility of co-morbid mental health disorders like PTSD needs to be addressed in the form of effective treatment modalities in the mental health setting.

## **PTSD Treatment**

**Treatment types.** Several different treatments are currently available for PTSD through the VA. Pharmacotherapies, such as selective serotonin reuptake inhibitors (e.g., citalopram, fluoxetine, and sertraline), serotonin-norepinephrine reuptake inhibitors (e.g., venlafaxine), tricyclic antidepressants (e.g., amitriptyline), and, more recently, beta blockers (e.g.,

propranolol), are usually used in combination with some form of psychotherapy (Sharpless & Barber, 2011; NCPTSD, 2010; Vaiva et al., 2003). While there are numerous psychotherapies available, including PE, CPT, EMDR, relaxation training, stress inoculation training, interpersonal psychotherapy, and dialectical behavior therapy, the ones most commonly cited in the literature are PE, CPT, and EMDR (Sharpless & Barber, 2011; Lee & Drummond, 2008; Lilienfeld & Arkowitz, 2008; Rauch et al., 2009; Högberg et al., 2008; Lazrove, Triffleman, Kite, McGlashan, & Rounsaville, 1998; NCPTSD, 2010).

Prolonged exposure ranges from 8 to 15 weekly sessions, with each session lasting a total of 90 to 150 minutes, depending upon the VA facility in which it is administered. This therapy attempts to modify memory structures underlying emotions, like the omnipresent fear associated with traumatic events, by having a client revisit his or her trauma memories through imaginal exposure (i.e., re-visiting and re-experiencing one's trauma with their therapist through memory and emotionally engaging in the memory). The client then describes aloud those memories and any feelings he or she is experiencing. During and after processing of the trauma, a psychoeducational component, aimed at teaching the client how to manage feelings and thoughts associated with the trauma, and slowed breathing techniques are implemented (Rauch et al., 2009; Sharpless & Barber, 2011; NCPTSD, 2010).

Cognitive processing therapy is usually administered in 12 individual or group weekly sessions. Each session is 60 minutes in duration. This therapy has three stages. In the initial stage, the impact of trauma and connection between thoughts and feelings are examined. In the second stage, the meaning of the traumatic event(s) is explored to help clients challenge their automatic thoughts, or stuck points, with a specific focus on self-blame. Clients write in detail about their trauma and then read their accounts aloud, both to themselves and in their CPT

sessions. During the third stage, clinicians assist clients in working through stuck points in their narratives using cognitive behavioral strategies. By looking at the thoughts that may reflect assimilation (e.g., “It was my fault my dad died”) or overaccomodation (e.g., “If I get too happy, something bad will happen to me”), clients are often able to see where inaccurate conclusions about self and others were drawn. At the end of this process, they are again asked to discuss the impact of the traumatic events to determine how their thinking has changed and if their beliefs have become more balanced (Sharpless & Barber, 2011; Högberg et al., 2008; Chard et al., 2010; J. Wright, personal communication, April 16, 2012).

Eye movement desensitization and reprocessing therapy consists of a varied number of sessions related to one’s personal circumstances and previous trauma. Each session is divided into eight stages. These stages are carried out in the following order by the clinician: 1) client history taking, during which time the client is evaluated for their presenting problem, coping abilities, and possible root trauma(s) that may have lead up to their presenting problem, 2) client preparation, which is used to inform the client of the EMDR process, perform a safe place exercise, and teach a stress management technique, 3) assessment, which helps the client determine which trauma memory to work on, 4) desensitization, during which bilateral stimulation of some form, usually finger movements, is performed until the client is completely desensitized to their trauma memory, 5) installation, during which the client holds the memory in their mind while thinking of a new, positive thought to be associated with the memory, all while bilateral stimulation is being performed, 6) body scan, which involves the client holding the trauma and new belief in mind while scanning his or her body for any residual tension, 7) closure, which is the process of ending a session, and 8) reevaluation, which occurs at the

beginning of the next session and involves evaluating the client's progress during the time between sessions (Dworkin, 2003; Lilienfeld & Arkowitz, 2008; Lazrove et al., 1998).

**Efficacy of PTSD treatments.** Prolonged exposure and CPT have been met with widespread positive reviews. A study by Rauch et al. (2009) of 10 veterans who had recently returned from Iraq and Afghanistan found they showed significant reductions in PTSD symptoms on post questionnaires and interviews after receiving between 7 and 21 sessions of PE. Similarly, in a study of 65 civilians with PTSD, Hagedaars and van Minnen (2010) determined that exposure therapy, another name for PE, offered in 8 to 12 weekly sessions that lasted 45 minutes, resulted in increases in posttraumatic growth – this is positive change in one's emotional, cognitive, and social functioning as a result of learning new ways to process and integrate traumatic events - after treatment and better overall treatment outcome. Schnurr et al. (2007) concluded, through a randomized controlled trial (RCT) of PE therapy with female veterans diagnosed with PTSD, those who received PE showed greater reductions in PTSD than the control group which was administered present-centered therapy. PE was also one of only two psychotherapies selected – the other being CPT – by the VA and DOD for expansive dissemination within their healthcare facilities (Sharpless & Barber, 2011).

A meta-analysis of six studies examining the effectiveness of CPT found that it was successful in alleviating PTSD symptoms associated with mild (e.g., loss of a pet) and severe (e.g., witnessing death of a friend or family member) traumas for military and civilian populations (Cahill, Rothbaum, Resick, & Folette, 2008). As mentioned earlier, Graca et al. (2012) concluded CPT is an effective treatment for PTSD in a VA residential setting, based on pre and post scores of three different test measures. A study utilizing an RCT in which Vietnam veterans with PTSD were administered CPT therapy showed significant improvements in PTSD

and comorbid symptoms immediately and one month after completion of treatment (Monson et al., 2006). And, Friedman (2005) determined CPT and PE have met the most rigorous scientific criteria for efficacy.

Eye movement desensitization and reprocessing therapy, on the other hand, has produced mixed results within current research. Lazrove et al. (1998) found that, of seven adult participants who completed three 90-minute sessions of EMDR, none met criteria for PTSD, as stated in the Diagnostic and Statistical Manual-III-R (DSM-III-R; APA, 1987), two months after treatment. Similarly, Högberg et al. (2008) found that 17 participants with chronic PTSD did not meet criteria, as stated in the Diagnostic and Statistical Manual-IV (DSM-IV; APA, 1994), directly after treatment, as well as at 8 and 35 months after treatment. A meta-analysis of seven different psychotherapies, including EMDR, and based upon 33 RCTs, determined that EMDR was effective in the civilian population (Bisson & Andrew, 2007). And, of all the literature reviewed, none included or cited previous studies where EMDR was less effective than PE or CPT.

However, in a study by Lee and Drummond (2008), EMDR, when administered to 48 participants over one session and measured one week later, reduced distress but not vividness associated with traumatic memories. As mentioned earlier, a lack of strong empirical evidence and theoretical groundwork (i.e., some scholars believe EMDR is based solely on imaginal exposure and/or an educational structure) for EMDR are given as the main reasons by military and veterans' health agencies for continuing research into its effectiveness as a treatment for PTSD (Sharpless & Barber, 2011; Institute of Medicine, 2007). Dworkin (2003), in his case study analysis of EMDR as an effective therapy, did not dismiss it as invalid. Rather, he suggested aspects of the therapeutic relationship that develop between the clinician and client

during EMDR, including empathy, transference, and countertransference, are commonly misunderstood, overlooked, or both, decreasing the apparent benefits the therapy has to offer.

**Types of PTSD treatment programs.** The VA offers several programs for the treatment of PTSD. These services, as with any VA care, are offered to all veterans who have: a) completed active military service in the Army, Navy, Air Force, Marines, Coast Guard, or Merchant Marines During World War II or are National Guard members or reservists who have completed a federal deployment in a combat zone and b) been discharged under other than dishonorable conditions (NCPTSD, 2010).

Each program offers evaluation, education, and treatment. The program services include: a) one-to-one mental health assessment and testing, b) medication, c) one-to-one psychotherapy and family therapy, and d) group therapy, which covers topics like combat support, anger and stress, and partner relationships. Additionally, every VA medical center has providers who are trained to provide PTSD treatment.

Certain VA medical centers also offer one or both of two unique PTSD treatments. The first is called Specialized Outpatient PTSD Programs (SOPPs). Three types of outpatient clinics comprise SOPPs and allow veterans to meet with a provider on a regular basis: a) PTSD Clinical Teams (PCTs) provide group and one-to-one treatment, b) Substance Use PTSD Teams (SUPTs) treat the combined issues of PTSD and substance use, and c) Women's Stress Disorder Treatment Teams (WSDTTs) offer women veterans both group and one-to-one treatment.

The other unique PTSD treatment is comprised of Specialized Intensive PTSD Programs (SIPPs). Treatment services are carried out in a therapeutic environment. Many of the individual programs under SIPPs are residential, where veterans live at the VA facility during treatment. Social, recreational, and vocational activities and counseling are part of SIPPs. The

following are the specialized programs of SIPPs: a) outpatient PTSD Day Hospitals, which provide one-to-one and group treatment for 4 to 8 hours per visit and are available on a daily basis, b) Evaluation and Brief Treatment of PTSD Units (EBTPUs), which provide PTSD treatment for a short time ranging from 14 to 28 days, c) PTSD Residential Rehabilitation Programs (PRRPs), which offer PTSD treatment and case management, with the goal being to help trauma survivors return to a healthy, functional way of living in their communities; stays in this program are commonly 28 to 90 days long, d) Specialized Inpatient PTSD Units (SIPUs), which offer trauma-focused treatment within a VA facility for an average length of 28 to 90 days, e) PTSD Domiciliary (PTSD Dom), which provides residential treatment for a set period of time, with the goal being to assist veterans in improving their mental and physical health and transitioning to outpatient mental health care, and f) Women's Trauma Recovery Program (WTRP), which is a 60-day residential program focused on war zone-related stress and MST and allows veterans to work on their social skills so they may deal comfortably with others (NCPTSD, 2010).

**Discrepancies regarding PTSD treatment findings.** The assorted findings regarding PTSD treatment can be attributed to a number of study limitations including different sample sizes, an unequal number of therapy sessions for each individual in each study, varied levels of training for clinicians and researchers administering treatments, different types and numbers of pre and post assessment instruments used to measure PTSD symptoms, and the tendency for participants to have co-occurring mental health conditions (Sharpless and Barber, 2011; Lee and Drummond, 2008; Lilienfeld and Arkowitz, 2008; Rauch et al., 2009; Högberg et al., 2008; Lazrove et al., 1998). Additionally, Schottenbauer et al. (2008) claimed that major treatment

dropout and non-response rates in studies of current empirically supported treatments for PTSD reveal that these therapies do not successfully treat all patients.

## **Conclusion**

The personal experience of traumatic events, such as abuse and death, can lead to the development of PTSD, especially among military veterans. Those who use VA services commonly present to primary health clinics, many with co-morbid conditions that are both physical and mental in origin, making diagnosis and treatment challenging. However, a summary of the literature reveals valuable information for the advancement of PTSD treatment. Even though PE, CPT, and EMDR are currently supported by empirically-based evidence, future research will help solidify their foundation as sound and effective PTSD treatments and offer insight into ways they can be improved. Additionally, potential studies that sample the veteran population can help clarify the effectiveness of these therapies within the VA. This research project was developed for just that purpose. Particular attention was given to how treatment outcomes are affected by and/or correspond to the following variables: age, gender, ethnicity, and type of treatment received in the PTSD program. This method, in turn, provided insight into the following research question posed for this project: How does a PTSD program offered through the VA affect symptoms of PTSD and depression in veterans who have completed treatment?

## **Program Description**

A PTSD residential treatment program in the mid-western United States was evaluated for this project. This program was started in 2000 due to a need for specialized PTSD treatment for the growing number of veterans with a PTSD diagnosis (J. Graca, personal communication, June, 2009). It is part of this VA facility's mental health services – primary care, surgical, urgent care, acute psychiatric, telemedicine, extended care, rehabilitation, imaging, laboratory, and pharmacy services are also offered here - and aims to help veterans struggling with residual symptoms of traumatic events by improving their mental, physical, and social functioning (U. S. Department of Veterans Affairs, 2011). Consisting of an approximately 8-week inpatient treatment, this program represents part of the SIPPs, one of two unique PTSD treatments offered by some VA facilities throughout the United States and mentioned above (NCPTSD, 2010).

The program is led by two psychologists and three social workers and supervised by the Mental Health Service Line Director of the VA facility. All PTSD program staff members who provide psychotherapy are certified to provide PE or CPT therapy, or both. Veterans who enter into the program have a PTSD diagnosis established by a mental health professional prior to admission. For the purposes of this project, diagnosis was confirmed by reviewing the veterans' problem lists, psychiatric evaluations and/or psychological evaluations from their electronic medical charts.

Initially, the PTSD program was limited to providing trauma exposure therapy for combat veterans, which was considered the most effective therapy available at that time. This therapy consisted of veterans meeting as a group of no more than eight participants four times a week to discuss and process the traumatic effects of military combat. In 2007, this program expanded to include offering CBT in a format combining group CPT with individual trauma

processing, which is the same as the trauma exposure therapy previously offered exclusively, except on an individual basis. The VA being evaluated in this project was one of the first VA facilities to make this addition. Shortly after making this change, three evidenced-based individual trauma processing therapies, PE, CPT, and EMDR, were made available in the program. Currently, however, only CPT and PE are being offered.

Criteria for admission to the program include: a) established diagnosis of PTSD, b) sobriety for 45 days prior to admission if the veteran had a prior substance abuse or dependence diagnosis, c) stability on psychotropic medications, d) no suicide risk for at least two weeks prior to admission, and e) a VA PTSD treatment program has not been completed in the last year. Veterans enter the 45-day PTSD program as a cohort group of up to 16 veterans per group. After the staff assesses the veteran's needs, he or she is assigned to either the group trauma exposure track or the CPT track. All veterans in the trauma exposure track have combat-related PTSD and those in the CPT track have PTSD resulting from traumatic military non-combat and civilian events.

Veterans in the CPT track are assigned an individual therapist for trauma processing. The individual therapist provides either CPT or PE; the type of therapy administered is decided upon by each veteran. All veterans in the CPT track participate 3 to 4 times weekly in a CBT group focused on processing their cognitive distortions and negative beliefs. Veterans in the trauma exposure track process their traumatic experiences in a group setting four times per week. Veterans in both tracks attend PTSD psychoeducational and skill building groups together (e.g., stress management, seeking safety, spirituality, and anger management groups; J. Graca, personal communication, August 22, 2011).

All veterans who enter the PTSD program also receive a battery of clinical outcome measures upon admission into and discharge from the program. These measures include the Beck Anxiety Inventory (BAI), Beck Depression Inventory-II (BDI-II), PTSD Checklist (PCL), and Posttraumatic Growth Inventory (PGI). Portions of the BDI-II and PCL data were analyzed for this research project. Since the inception of this program, outcome data from these and other measures have been collected to assess effectiveness, efficiency, and satisfaction as they relate to the services provided. The outcome data management system was developed and has been continually modified to conform to the Commission on Accreditation of Rehabilitation Services (CARF) standards (2008).

## **Method**

### **Research Design**

The purpose of this research project was to explore the effects of a mid-western VA PTSD program on symptoms of PTSD and depression in military veterans who participated in the program. A quantitative design in the form of a secondary data analysis of available data was utilized.

### **Population and Sample**

The population from which the sample was drawn for this project included all veterans, male and female and from all ethnic/racial backgrounds, who have: a) completed active military service in the Army, Navy, Air Force, Marines, Coast Guard, or Merchant Marines During World War II or are National Guard members or reservists who have completed a federal deployment in a combat zone and b) been discharged under other than dishonorable conditions (NCPTSD, 2010). A non-probability sample of convenience was developed and consisted of 124 veterans who meet the following inclusion criteria: a) diagnosis of PTSD, which was verified through review of the sample participants' problem lists, psychiatric evaluations, and/or psychological evaluations listed in their electronic medical charts, b) admission to a 45-day PTSD treatment program at a mid-western VA health facility between August, 2006 and September, 2009, followed by completion of treatment, and c) completion of pre, post, 6-, and 12-month follow-up BDI-II and PCL measures. Those who did not meet all of the above inclusion criteria were excluded from the sample.

A non-probability sampling design was chosen for this project because of the researcher's access to statistical data she collects for the PTSD program in the mid-western VA facility at which she is employed as a psychometrist, or a person who administers, scores, and sometimes

interprets test data. The readily available data was easily collected and de-identified by the Research Coordinator at this VA facility to perform a secondary data analysis of pre, post, and follow-up test scores.

### **Protection of Human Subjects**

Protection of the sample participants was maintained during and after the collection, analysis, and dissemination of data utilized. This safeguard was accomplished through several steps. First, the electronic data currently used by the researcher as part of her employment duties was copied and placed in a secure electronic folder accessible to only the VA facility's Research Program Coordinator, Privacy Officer, and Information and Security Officer. Informed consent from participants represented by the data was not needed, as this project is implemented a secondary data analysis. Participants gave informed consent in conjunction with Health Insurance Portability and Accountability Act (HIPAA) guidelines upon their admission into the PTSD program. A waiver of HIPAA authorization was obtained through a VA Institutional Review Board (IRB; personal communication, G. Palmer, November 14, 2011). Only one anticipated risk to participants, the breach of confidentiality through use of their medical records, existed. No direct benefits from this project existed for participants.

Second, the Research Program Coordinator de-identified the data by removing names, social security numbers, and dates of admission, discharge, and follow-up testing gathered as part of the PTSD program. However, a master list that does include these identifying factors was maintained by the Research Program Coordinator according to VA policy, which dictates that a master list of all samples used in VA research projects be saved in case the VA facility is audited (G. Palmer, personal communication, August 31, 2011). Though anonymity was somewhat compromised by having a master list to connect data to participants, confidentiality was

maintained at all times by not releasing any identifying information to anyone other than the Research Program Coordinator, Privacy Officer, and Information Security Officer. Persons in these positions oversee security of VA data, including that which is collected for research purposes, as part of the VA's mission to maintain federal laws which protect veterans' health care and records.

Third, the Research Program Coordinator placed the de-identified data in a separate electronic folder accessible to him, the researcher, and the VA facility's Privacy and Information Security Officers. The researcher accessed this data only for the purposes of analysis and interpretation of project findings. After completion of this clinical research project in May of 2012, all de-identified data was stored permanently by the Research Program Coordinator in a secure electronic folder accessible only to the three individuals noted above (i.e., VA Research Program Coordinator, Privacy Officer, and Information Security Officer), as well as the Research Compliance Officer.

Fourth, a proposal was submitted to the University of Saint Thomas (UST) IRB. The researcher made all corrections and changes as suggested by the IRB in order to begin data collection and analysis and complete this research project in a timely manner.

And fifth, in order to use VA data as part of this project, an abstract and protocol (see Appendices B and C, respectively) – these are the required documents for any VA research – were submitted to the VA facility's Research and Development (R&D) Committee. This committee recommended minor changes to each of these documents, including a description of how a PTSD diagnosis is established for participants and minor grammatical corrections. The researcher made these changes by clarifying the manner in which a PTSD diagnosis is established (i.e., it is conducted prior to program admission by a mental health professional and

verified later, during data collection and retrospective medical chart reviews) and by editing the VA Abstract and Protocol to reflect R&D recommendations for grammatical improvements. The VA Abstract and Protocol were submitted to an IRB located within a larger, neighboring VA facility and accepted by this IRB on October 28, 2011. Once changes suggested by the VA IRB were made to the abstract and protocol, the researcher re-submitted them to the R&D Committee at the VA facility where she works. The R&D Committee suggested final changes on December 14, 2011. These final alterations were made, allowing the researcher to begin data collection and analysis starting on January 5, 2012.

### **Data Collection**

Data were collected from a PTSD treatment program located at a VA facility in the mid-western United States. This program is part of the mental health services offered at the VA, which also provides primary care, surgical, urgent care, acute psychiatric, telemedicine, extended care, rehabilitation, imaging, laboratory, and pharmacy services. It was developed in 2000 and offered group trauma exposure to tracks of eight veterans at a time. In 2007, the PTSD program expanded and split into two separate tracks, with up to eight veterans in each track. One track consists of only combat veterans who receive group trauma exposure therapy. The other track consists of veterans who have experienced any type of trauma, military-related or otherwise; this track receives a combination of individual CPT or PE therapy and CBT therapy. Veterans in both tracks attend skill building groups to improve their mental and social functioning.

This program is part of the SIPPs, one of two unique PTSD treatments offered by some VA facilities throughout the United States and mentioned above (NCPTSD, 2010). It is led by two psychologists and three social workers and supervised by the Mental Health Service Line

Director of the VA facility. All PTSD program staff members who provide psychotherapy are certified to provide PE or CPT therapy, or both.

Data collected via in-person and phone administration of testing between August, 2006, and September, 2009, as part of the researcher's position as a VA psychometrist was analyzed. It included pre, post, 6-, and 12-month follow-up program scores from the BDI-II and PCL. A retrospective chart review of each participant was also conducted to gather limited demographic information, including age, gender, ethnicity, and the type of therapy (i.e., PE or CPT) received.

The BDI-II was a revision of the Beck Depression Inventory (BDI), developed in 1966. This revision was made in response to the APA's publication of the DSM-IV, which modified many of the diagnostic criteria for Major Depressive Disorder and increased the construct and content validity of the BDI-II (Beck, Steer, Ball, & Renieri, 1996). There are 21 questions on the BDI-II, which can be presented both orally and in written or computerized form. Each answer is rated on a scale of 0-3, with 0 indicating no endorsement of a depression symptom and 3 indicating endorsement of the severest form of that symptom. All item scores are summed for a total score; 0-13 indicates minimal depression, 14-19 indicates mild depression, 20-28 indicates moderate depression, and 29-63 indicates severe depression. The BDI-II is considered reliable and valid, as it is positively correlated with the Hamilton Depression Rating Scale ( $r=0.71$ ) and has been shown to have a high 1-week test-retest reliability ( $r=0.93$ ), suggesting it is not overly sensitive to daily mood variations. The test also has high internal consistency ( $\alpha=0.91$ ; Beck, Steer, & Brown, 1996).

The PCL is a self-report measure used to screen for and diagnose PTSD, as well as track PTSD symptom changes before and after clinical treatments. It was developed by Frank Weathers and his colleagues at the NCPTSD in 1993. The PCL consists of 17 items and comes

in military (PCL-M), civilian (PCL-C), and specific event (PCL-S) versions; the specific event version is used in the VA PTSD program being evaluated for this project. Each answer is rated on a scale of 1-5, with 1 indicating no experience of a PTSD symptom related to the responder's specific traumatic event and 5 indicating the severest experience of that symptom. All item scores are summed for a total score. A score of 50 or greater generally indicates a positive screen for PTSD, though this cutoff score is subject to variation, based on the VA clinic in which it is administered and the type of trauma addressed (NCPTSD, 2010). All versions of the PCL are considered reliable and valid. The PCL-S is positively correlated with the Clinician Administered PTSD Scale ( $r=0.93$ ) and has shown excellent test-retest reliability ( $r=0.80$ ) and internal consistency ( $\alpha=0.86$ ) for total PCL-S scores (Blanchard, Jones-Alexander, Buckley, & Forneris, 1996; Norris & Hamblen, 2003).

### **Data Analysis**

This quantitative case-control study utilized retrospective data to evaluate a PTSD treatment program in a mid-western VA facility. Total scores for the BDI-II and PCL, administered before, immediately after, and 6 and 12 months after completion of the program, were previously collected for evaluation purposes. After being de-identified, the data were stored on an Excel spreadsheet and analyzed at the VA facility.

Data analysis was carried out using the Statistical Package for the Social Sciences (SPSS) Version 20.0 software. Preliminary analyses were conducted to determine similarities between groups for age using analysis of variance (ANOVA), as well as for gender and ethnicity using chi-square tests. Multivariate analyses of covariance (MANCOVAs) were conducted on outcome dependent variables, and the pretreatment scores on the BDI-II and PCL were assigned as covariates. For statistical analysis of overall main effects, alpha was set to  $p < .05$ .

Independent variables were subjects who received PE, CPT, EMDR, or group trauma processing therapy. Dependent measures were the post, 6-month follow-up, and 12-month follow-up BDI-II and PCL scores. Multivariate analysis of covariance was determined to be advantageous for several reasons: a) MANCOVA allows for analysis of several dependent variables, b) the procedure is robust to potential violations of the assumption of normality for dependent variables, particularly with larger sample sizes, and 3) using the pretest scores as covariates will reduce the error variance and systematic bias. With nonrandomized designs, MANCOVA (as with analysis of covariance or ANCOVA) is used to adjust the posttest mean scores for differences among groups on the pretest means scores because such differences are likely to occur with intact groups (Dimitrov & Rumrill, 2003). One disadvantage of MANCOVA is that it is sensitive to outliers in the covariate. Data was examined for outliers and none that were significant were found and removed.

Additionally, post hoc t-tests were run within groups to compare pre, post, and follow-up scores of the BDI-II and PCL and reveal any significant changes in depression and PTSD symptoms over time. The calculation of effect sizes was analyzed to determine the clinical and statistical significance of changes in BDI-II and PCL scores over time. For the purposes of this study, effect sizes, based on partial eta squared ( $\eta_p^2$ ) values, were as follows: small = .01, medium = .06, and large = .14 (Cohen, 1988). And, correlations were run with demographic variables, including age, gender, and pre, post, and follow-up scores, to examine potential additional relationships among the data collected.

## Results

### Data Analysis Sample

The original sample obtained for secondary data analysis in this project consisted of 128 participants. However, as mentioned above, two participants did not complete the PTSD treatment program, even though they had completed testing at all points of test score measurement (i.e., pre, post, 6-month follow-up, and 12-month follow-up). Two additional participants in the CPT group were divided into their own group of therapy which consisted solely of individual therapy while the group therapy component to their treatment was missing. Because of the small sample size created by this group, as well as the failure of the first two participants to complete treatment – one inclusion criterion for this project – all four were excluded from the final sample of participants whose data was analyzed and reported in this section. No participants' scores were determined to represent extreme outliers. Therefore, 124 cases were used for full analysis. Tests of homogeneity revealed that data adequately met assumptions of normality to allow for further statistical analyses without need for additional data transformation.

The characteristics of the sample are presented in Table 1, which includes age, gender, ethnicity, and type of treatment received. Group trauma processing was included as a point of comparison since a portion of the sample participants only received this type of therapy. Mean age ranged from 47 to 58 years ( $SD = 14.70$  to  $12.10$ , respectively), depending upon the treatment group to which participants were assigned. Most of the sample consisted of Caucasian males. The largest treatment group ( $n=65$ ) was group trauma processing (i.e., the exclusive treatment for participants in the exposure track) and the smallest treatment group ( $n=8$ ) was EMDR.

Table 1

*Demographic Characteristics of the Sample*

Characteristic	PE (n = 11)	CPT (n = 40)	EMDR (n = 08)	GPT (n = 65)	Test, <i>p</i> - value
Age					$F(3, 120) = 0.84, p=.48$
M	51.91	52.55	47.13	53.58	
(SD)	(9.20)	(8.74)	(14.70)	(12.10)	
Gender					$X^2(3) = 3.35, p=.34$
Male	10 (90.9%)	38 (95.0%)	7 (87.5%)	64 (98.5%)	
Female	1 (9.1%)	2 (5.0%)	1 (12.5%)	1 (1.5%)	
Ethnicity					$X^2(6) = 10.88, p=.09$
Caucasian	11 (100%)	31 (77.5%)	6 (75.0%)	61 (93.8%)	
African Am.	0 (0.0%)	6 (15.0%)	2 (25.0%)	3 (4.6%)	
Native Am.	0 (0.0%)	3 (7.5%)	0 (0.0%)	1 (1.5%)	

*Note.* PE = prolonged exposure therapy; CPT = cognitive processing therapy; EMDR = eye movement desensitization and reprocessing therapy; M = mean; SD = standard deviation.

**Preliminary Data Analysis**

Preliminary data analysis was conducted with the demographic variables of age, gender, and ethnicity. Analysis of variance (ANOVA) comparing age differences between groups revealed no significant findings [ $F(3, 120) = .84, p = .48$ ]. Differences in gender were not significant between groups [ $\chi^2(3) = 3.35, p = .34$ ]. Finally, there were no significant differences in ethnicity between groups [ $\chi^2(6) = 10.88, p = .09$ ]. As revealed in Table 1, the vast majority of subjects were Caucasian. Given results of preliminary analyses, it was concluded the treatment groups were sufficiently matched on demographic variables of age, gender, and ethnicity.

Additionally, correlations between age, gender, and test scores revealed no significant relationships.

### Multivariate Analysis of Covariance

The results of the MANCOVA, as presented in Tables 2 and 3, demonstrated a significant main effect for pre and post scores on the BDI-II [Wilk's Lambda = .66,  $F(3, 117) = 20.41$ ,  $p < .001$ ,  $\eta_p^2 = .34$ ], and PCL [Wilk's Lambda = .77,  $F(3, 117) = 11.68$ ,  $p < .001$ ,  $\eta_p^2 = .23$ ]. The overall effect size was large for scores on the BDI-II and PCL. However, the overall main effect for type of treatment was not significant.

Table 2

*Between and Within Group Effects for the BDI-II With Pretreatment Condition as Covariate*

Variable (Est. Mean + SE <sup>a</sup> )	PE <sup>b</sup>	CPT <sup>c</sup>	EMDR <sup>d</sup>	GTP <sup>e</sup>	<i>F</i>	<i>p</i>	$\eta_p^2$ (MANCOVA)
Post-Test <sup>f</sup>	24.59 ± 3.20	23.56 ± 1.68	29.17 ± 3.78	23.32 ± 1.31	31.47	$p < .001$	0.21
6-Month <sup>f</sup>	33.61 ± 3.21	35.31 ± 1.68	33.99 ± 3.79	31.79 ± 1.32	42.10	$p < .001$	0.26
12-Month <sup>f</sup>	33.66 ± 3.19	33.46 ± 1.67	31.91 ± 3.77	32.04 ± 1.31	52.11	$p < .001$	0.31

*Note.* <sup>a</sup>SE = standard error; <sup>b</sup>PE = prolonged exposure therapy; <sup>c</sup>CPT = cognitive processing therapy; <sup>d</sup>EMDR = eye movement desensitization and reprocessing therapy; <sup>e</sup>GTP = group trauma processing therapy. <sup>f</sup>Covariates appearing in the MANCOVA were evaluated with the BDI-II Pre value = 31.36.

Table 3

*Between and Within Group Effects for the PCL With Pretreatment Condition as Covariate*

Variable (Est. Mean + SE <sup>a</sup> )	PE <sup>b</sup>	CPT <sup>c</sup>	EMDR <sup>d</sup>	GTP <sup>e</sup>	<i>F</i>	<i>p</i>	$\eta_p^2$ (MANCOVA)
Post-Test <sup>f</sup>	52.94 ± 4.24	53.87 ± 2.22	52.52 ± 4.96	54.95 ± 1.74	14.76	<i>p</i> < .001	0.11
6-Month <sup>f</sup>	60.94 ± 3.40	59.22 ± 1.78	62.14 ± 3.97	58.88 ± 1.39	22.95	<i>p</i> < .001	0.16
12-Month <sup>f</sup>	62.03 ± 3.69	61.50 ± 1.93	61.13 ± 4.31	60.17 ± 1.51	28.90	<i>p</i> < .001	0.20

*Note.* <sup>a</sup>SE = standard error; <sup>b</sup>PE = prolonged exposure therapy; <sup>c</sup>CPT = cognitive processing therapy; <sup>d</sup>EMDR = eye movement desensitization and reprocessing therapy; <sup>e</sup>GTP = group trauma processing therapy. <sup>f</sup>Covariates appearing in the MANCOVA were evaluated with the PCL Pre value = 63.85.

### Post-Hoc T-Tests

Post-hoc analyses for within-group differences were concluded with t-tests. Table 4 illustrates significant findings from the BDI-II scores for each of the treatment conditions regarding within-group differences. No significant differences were found between pre-treatment and other conditions for PE. Significant differences were found between pre-treatment and post-treatment conditions for CPT [ $t(39) = 3.30, p < .01$ ], as well as pre-treatment and 6-month follow-up conditions [ $t(39) = -2.08, p < .05$ ]. Unfortunately, scores were significantly higher on the 6-month follow-up condition when compared to the pre-treatment condition. No significant difference was found between baseline and 12-month follow-up conditions. For EMDR, no significant differences were found between pre-treatment and other conditions. For group trauma processing, significant differences were revealed between pre-treatment and post-treatment conditions [ $t(64) = 5.74, p < .001$ ].

Table 4

*Performance on Self-Report Measures for Each Group for the BDI-II*

Measure	PE <sup>a</sup> (n = 11) M(SD)	CPT <sup>b</sup> (n = 40) M(SD)	EMDR <sup>c</sup> (n = 08) M(SD)	GTP <sup>d</sup> (n = 65) M(SD)	<i>p</i> -value Between Groups
Pre	28.64 (9.71)	30.78 (12.27)	37.38 (14.66)	31.45 (11.95)	
Post	23.36 (14.25)	23.30 (11.49)**	31.88 (12.69)	23.35 (11.57)***	NS
6-Month	32.18 (15.19)	35.00 (9.51)*	37.13 (9.36)	31.83 (13.56)	NS
12-Month	32.09 (10.91)	33.13 (10.16)	35.38 (10.65)	32.09 (14.29)	NS

*Note.* <sup>a</sup>PE = prolonged exposure therapy; <sup>b</sup>CPT = cognitive processing therapy; <sup>c</sup>EMDR = eye movement desensitization and reprocessing therapy; <sup>d</sup>GTP = group trauma processing therapy. \*Post hoc testing within groups signifies significant difference between pretreatment condition and follow-up condition  $p < .05$ ; \*\*Post hoc testing within groups signifies significant difference between pretreatment condition and follow-up condition  $p < .01$ ; \*\*\*Post hoc testing within groups signifies significant difference between pretreatment condition and follow-up condition  $p < .001$ .

Table 5 shows significant within-group differences on the PCL for each of the treatment conditions. For PE, significant differences were found between pre-treatment and post-treatment conditions [ $t(10) = 2.79, p < .05$ ]. For CPT, significant differences were found between pre-treatment and post-treatment conditions [ $t(39) = 4.99, p < .001$ ], as well as pre-treatment and 6-month follow-up conditions [ $t(39) = 3.06, p < .01$ ]. While the mean value of scores for the 6-month follow-up condition was still significantly lower than that for the pre-treatment condition, it began to approach the pre-treatment mean value. No significant difference was found between baseline and 12-month follow-up conditions, also showing the 12-month follow-up mean value was approaching the pre-treatment mean value. For EMDR, no significant differences were found between pre-treatment and other conditions. For group trauma processing, significant differences were found between pre-treatment and post-treatment [ $t(64) = 4.63, p < .001$ ], pre-

treatment and 6-month follow-up [ $t(64) = 2.84, p < .01$ ], and pre-treatment and 12-month follow-up conditions [ $t(64) = 2.02, p < .05$ ]. No significant difference was found between baseline and 6-month follow-up conditions.

Table 5

*Performance on Self-Report Measures for Each Group for the PCL*

Measure	PE <sup>a</sup> (n = 11) M(SD)	CPT <sup>b</sup> (n = 40) M(SD)	EMDR <sup>c</sup> (n = 08) M(SD)	GTP <sup>d</sup> (n = 65) M(SD)	p-value Between Groups
Pre	60.09 (09.22)	64.83 (10.62)	66.63 (16.04)	63.54 (10.93)	
Post	51.27 (16.24)*	54.30 (14.62)***	53.75 (17.09)	54.82 (14.34)***	NS
6-Month	59.27 (13.17)	59.65 (11.53)**	63.38 (07.37)	58.74 (12.84)**	NS
12-Month	60.00 (13.37)	62.03 (12.89)	62.63 (06.82)	60.00 (14.42)*	NS

*Note.* <sup>a</sup>PE = prolonged exposure therapy; <sup>b</sup>CPT = cognitive processing therapy; <sup>c</sup>EMDR = eye movement desensitization and reprocessing therapy; <sup>d</sup>GTP = group trauma processing therapy.  
\*Post hoc testing within groups denotes significant difference between pretreatment condition and follow-up condition  $p < .05$ ; \*\*Post hoc testing within groups denotes significant difference between pretreatment condition and follow-up condition  $p < .01$ ; \*\*\*Post hoc testing within groups denotes significant difference between pretreatment condition and follow-up condition  $p < .001$ .

## **Discussion**

This project offers valuable information about the outcome of PTSD treatment using different psychotherapies in a residential VA setting. The results support previous findings that PE, CPT, and EMDR are all beneficial when examined for their effectiveness before and after the completion of therapy (Rauch et al., 2009; Hagenaars & van Minnen, 2010; Schnurr et al., 2007; Sharpless & Barber, 2011; Cahill et al., 2008; Graca et al., 2012; Monson et al., 2006; Friedman, 2005; Lazrove et al., 1998; Högberg et al., 2008; Yoder et al., 2012). However, the questionable efficacy of the therapies over time, as revealed by the follow-up and overall data analyses, requires further examination to determine the context of this project's findings, as well as future implications for using psychotherapy as a form of PTSD treatment for veterans.

### **Summary of Findings**

The large effect size revealed between BDI-II pre and post scores shows participants experienced a significant decline in symptoms of depression, irrespective of the treatment modality used over the course of PTSD treatment. Contrary to previous conclusions (Rauch et al., 2009; Hagenaars & van Minnen, 2010; Schnurr et al., 2007; Sharpless & Barber, 2011; Cahill et al., 2008; Graca et al., 2012; Monson et al., 2006; Friedman, 2005; Lazrove et al., 1998; Högberg et al., 2008), a similar decline in symptoms of PTSD over the course of treatment was not evident. Additionally, the type of treatment received by participants (i.e., PE, CPT, EMDR, or group trauma processing) did not affect the degree of symptomatology they endorsed for depression and PTSD at any point of treatment measurement. These findings suggest depression, more so than PTSD, can be positively affected by various types of PTSD treatment in a residential VA facility.

An examination of differences in mean scores for the BDI-II and PCL measures reveals interesting trends in progression of symptoms over time. For the BDI-II, there was a significant decline in scores from pre- to post-treatment when CPT and group trauma processing therapy were applied and a similar pattern appeared, albeit much weaker, when PE and EMDR were utilized. This finding demonstrates that all treatment modalities examined in this project were effective to varying degrees in reducing symptoms of depression throughout the course of treatment. However, because BDI-II scores increased at 6- and 12-month follow-up points of measurement to nearly meet or exceed the pre-treatment scores, it appears the sample of veterans in this project was not able to maintain the treatment effect of minimized symptomatology long-term.

Comparable results were obtained from PCL mean scores. There was a significant decline in scores from pre- to post-treatment for all types of treatment, though EMDR revealed this change to a lesser degree than was apparent in the other treatment modalities (i.e., PE, CPT, group trauma processing). Scores at 6- and 12-month follow-up points of measurement again approached or exceeded pre-treatment scores; these results differ significantly from previous research findings that have shown decreased PTSD symptomatology 5-10 years after completion of PTSD treatment (Resick, Williams, Suvak, Monson, & Gradus, 2011). Akin to symptoms of depression during and after treatment, the PCL scores revealed the veteran sample was not able to maintain decreased symptomatology long-term.

### **Strengths and Limitations**

There are several strengths inherent in this clinical research project. First, it utilized data collected from a large sample of veterans with PTSD, enhancing the knowledge base for PTSD treatment offered within VA facilities. Second, only one participant was excluded from the

initial sample due to having dropped out of treatment early, minimizing the influence of attrition on this project's results. Third, the use of follow-up data, which is rare in clinical practice settings, serves to inform the course of symptomatology for depression and PTSD before and after treatment. Fourth, the number of statistics used offers an array of information about the effects of treatment on PTSD among military veterans. Fifth, any relationships revealed between demographic variables and scores on the BDI-II and PCL can influence future PTSD treatment modalities, both within the VA and DOD. And sixth, findings from this project may be generalized to similar PTSD residential treatment settings within the VA.

However, there are also limitations to this project. First, the data used comes from a treatment, rather than randomized, sample, making generalizability to all veterans or the general population improbable. Second, while a low dropout rate is advantageous to the validity of this project's findings, it can also be viewed as a limitation; veterans have been found to exhibit strong help-seeking behaviors because the presence of illness can ensure the continuation of government benefits, making them less likely to drop out than non-veteran research samples (Schottenbauer et al., 2008). Third, the subsamples created by each treatment group were unequal (i.e., EMDR had the smallest group and group trauma processing had the largest). Although overall significant main effects of MANCOVA partially addressed problems with unequal cell sizes, it may not have been sufficient for post-hoc analyses. Therefore, post-hoc analyses may not have detected significant treatments effects due to small sample size. Fourth, lack of a control group, which is useful in determining the effects of possible confounding variables, further weakened the methodological rigor of the project. Fifth, only the total scores of two measures, the BDI-II and PCL, and limited demographic information were examined. An analysis of scores from a larger group of psychometric measures, as well as a collection of

several demographic characteristics would provide a clearer picture of how PTSD treatment within the VA and military veterans diagnosed with PTSD intersect. Sixth, a secondary data analysis implies the data have been previously collected and are in final form at the time of analysis, thereby preventing opportunities to research an array of variables. And finally, the data were collected via in-person and telephone testing administrations, with phone administrations administered solely by a female and in-person testing administered by both a male and female. These factors could have biased the way in which subjects responded to test items.

### **Implications**

The findings of this research project offer valuable insight into the dynamics of PTSD treatment in a residential VA facility but also raise questions about its long-term efficacy. First, in the area of future research, attention needs to focus on the use of large, diverse sample populations (e.g., to include gender, age, ethnicity, wartime experience, co-morbid health factors, support systems, medications used, psychiatric hospitalizations) so as to accurately represent the ways in which PTSD treatment is experienced by individuals of all backgrounds. Second, a larger array of sound data collection methods (e.g., interviews, questionnaires, psychometric instruments, case studies, RCT experiments, field observations) needs to be employed so as to gain a greater understanding of the best ways to record content related to factors affecting PTSD treatment in a VA facility. And third, since most research focuses on how PTSD symptoms are affected by evidence-based therapies like PE, CPT, and EMDR (Rauch et al., 2009; Hagenaars & van Minnen, 2010; Schnurr et al., 2007; Sharpless & Barber, 2011; Cahill et al., 2008; Graca et al., 2012; Monson et al., 2006; Friedman, 2005; Lazrove et al., 1998; Högberg et al., 2008), future research endeavors could help clarify how these therapies, as well as other residential

treatment factors (e.g., socialization, behavioral activation, and medication stability/compliance), affect depression symptoms.

Many practice implications also exist. First, clinicians need to develop highly individualized assessments and treatment plans for veterans, as well as non-veterans. By doing this, each person will be matched with the best method of treatment to meet their personalized needs. Second, when meeting with veterans who have completed PTSD treatment in a VA residential setting, clinicians should carefully assess the long-term effectiveness of treatment by exploring contributing factors; these include social support systems, housing needs, mental health and/or substance use diagnoses, financial and legal status, coping skills, motivation to change, possible secondary gains of remaining mentally ill to receive uninterrupted VA compensation, and previous treatment/therapy experiences (Kutter et al., 2004). Awareness of the chronic nature of PTSD and the trend towards a partial regression of symptoms after completion of treatment can also assist clinicians in gauging how effective previous PTSD treatments have been (J. Wright, personal communication, April 16, 2012). Third, comprehensive knowledge of each evidence-based practice examined in this project (i.e., PE, CPT, and EMDR), as well as group trauma processing, can ensure an accurate and uniform delivery of therapy. Inconsistent therapy procedures, whether administered by different clinicians or the same clinician, can significantly affect alleviation of symptoms originating from PTSD, depression, and other mental health disorders.

Finally, certain policy issues are evident. First, feedback from veterans, their families and friends, and professionals about experiences with VA-based PTSD treatment and its long-term effects on mental health can greatly influence the construction of comprehensive VA policies and procedures, leading to more effective, cost-efficient services. Second, nationwide

education, within both VA facilities and their surrounding communities, about the components of effective PTSD treatment and aftercare may convince policymakers to allocate greater funding for PTSD-related services within the VA. Third, the VA and DOD can combine their anecdotal and empirical data (e.g., from research projects such as this) to streamline PTSD services and promptly address the consequences of this disorder for individuals as they transition from military to veteran health care.

## **Conclusion**

Posttraumatic stress disorder has long plagued military personnel and veterans. The complexity with which it manifests itself, commonly co-occurring with other biopsychosocial factors, has made assessment and treatment within the VA setting challenging. However, the VA has responded proactively with the development of several different programs aimed at treatment and management of PTSD symptoms. As an example of current research, this project has revealed findings that support PE, CPT, and EMDR, as well as group trauma processing, as effective treatments within a residential VA facility. Future endeavors are needed, though, to inform the direction of research, practice, and policy, thereby upholding the VA's mission to consistently provide competent, effective care to every veteran served.

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## Appendix A

### ABSTRACT

**Protocol:** Effects of Posttraumatic Stress Disorder (PTSD) Treatment Offered in a Veterans Administration (VA) Mental Health Facility on Veterans' PTSD and Depression Symptoms.

**Principal Investigator:** Glen Palmer, PhD, ABN

**Co-Investigator:** Kylene Occhietti, BS

**Objective/Hypothesis:** The purpose of this project is to conduct a non-randomized comparative study of the effectiveness of the three evidence-based psychotherapies (i.e., PE, CPT, and EMDR), offered in a residential clinical setting, on veterans' symptoms of PTSD and depression. The study will test the following hypotheses:

- 1) Veterans who receive any of the evidence-based individual psychotherapies (i.e., PE, CPT, or EMDR, when it was still being offered at the Saint Cloud VA) will show a reduction in symptoms of PTSD and depression upon discharge from the program, a slight increase in symptoms at the 6-month follow-up and a leveling off of symptom intensity by the 12-month follow-up. These findings will vary by veterans' demographic characteristics, including age and ethnicity.
- 2) There will be no significant differences between PE, CPT, and EMDR in their effect on veterans' symptoms of PTSD and depression.

**Research design/Methodology:** All veterans who were admitted to the Saint Cloud PTSD residential program from August, 2006 to September, 2009 and completed pre, post, 6-, and 12-month follow-up measures are to be included in the sample. Criteria for admission to the program includes: a) established diagnosis of PTSD, b) sobriety for 45 days prior to admission if the veteran had a prior substance abuse or dependence diagnosis, c) stability on psychotropic medications, d) no suicide risk for at least two weeks prior to admission, and e) the veteran has not completed a PTSD program in the last year. All veterans who enter the Saint Cloud PTSD program receive a battery of clinical outcome measures upon admission into and discharge from the program. These measures include the Beck Anxiety Inventory, Beck Depression Inventory-II, PTSD Checklist, and Posttraumatic Growth Inventory. Outcome data from the Beck Depression Inventory-II and PTSD Checklist from the Saint Cloud PTSD residential program will be utilized. A chart review will also be conducted to gather some demographic information (i.e., gender, age, and ethnicity) and type of therapy received on subjects included in the sample. Analyses of outcomes will include comparisons of pre- and posttest measures and follow-ups. ANOVAs, t-tests, and correlations will be used for continuous variables. Chi-square tests will be used for nominal or categorical data. Regression analysis will also be used for continuous and/or categorical variables.

**Clinical Significance:** The most recent literature regarding the best evidence-based therapies for PTSD form a consensus that PE, CPT, and EMDR are, indeed, evidence-based. However, this research also shows studies with veteran samples in which pre, post, 6-, and 12-month follow-up test data from their PTSD treatment is limited. This proposed comparative study will explore the effectiveness of PE, CPT, and EMDR on symptoms of PTSD and depression over

time, as well as provide valuable information for the future of the Saint Cloud PTSD program and other PTSD residential treatment settings in the VA.

## Appendix B

**Protocol:** Effects of Posttraumatic Stress Disorder (PTSD) Treatment Offered in a Veterans Administration (VA) Mental Health Facility on Veterans' PTSD and Depression Symptoms.

**Principal Investigator:** Glen Palmer, PhD, ABN

**Co-Investigator:** Kylene Occhietti, BS

**Background:** The military veteran population, having endured the conflicts of war to secure the freedoms of the United States, has received national attention for the struggles some of its members have had with posttraumatic stress disorder (PTSD). PTSD is characterized by symptoms of avoidance, emotional numbing, and hyperarousal to stimuli that remind one of a traumatic event(s) he or she has experienced (e.g., military combat, rape, being witness to the violent death of a friend or family member, Dworkin, 2003).

Prevalence estimates show, for those veterans who have served in Operations Enduring Freedom and Iraqi Freedom (OEF/OIF), approximately 15% or more have developed PTSD (Shiner, 2011), compared to 30% and 26%, respectively, of male and female Vietnam war veterans, approximately 10% of Gulf War veterans, and 8% of veterans deployed to Somalia (Friedman, 2005). Between 1999 and 2004, the number of veterans who reported PTSD increased from 120,265 to 215, 871. During this same time period, veterans' compensation for developing PTSD as a result of their military duties rose from 1.72 to 4.28 billion dollars (Committee on Veterans' Compensation for PTSD, 2007; Institute of Medicine [IOM] and National Research Council, 2007).

Based on the rising cases and mental and physical health costs of PTSD (Shiner, 2011), Congress has allotted considerable funding to the Department of Veterans Affairs (VA) and the Department of Defense (DOD, Levin, 2011). The VA has used its portion of this funding to research and offer the best care available to its veterans. Currently, PTSD is treated within the VA using a number of different pharmacologic (e.g., selective serotonin reuptake inhibitors and serotonin-norepinephrine reuptake inhibitors) and/or psychotherapeutic (e.g., cognitive behavioral therapy [CBT], brief psychodynamic psychotherapy, and family and group therapy) interventions in residential and outpatient settings (Sharpless and Barber, 2011; National Center for PTSD [NCPTSD], 2010). More recently, PTSD treatment programs offered by the VA have focused on two evidence-based CBT treatments that have been shown to be very successful in treating PTSD: Cognitive Processing Therapy (CPT) and Prolonged Exposure (PE, NCPTSD, 2010).

Prolonged exposure and CPT have been met with widespread positive reviews. A study by Rauch et al. (2009) of 10 veterans who'd recently returned from Iraq and Afghanistan found they showed significant reductions in PTSD symptoms on post questionnaires and interviews after receiving between 7 and 21 sessions of PE. Similarly, in a study of 65 civilians with PTSD, Hagenars and van Minnen (2010) found exposure therapy offered in the form of 8 to 12 weekly sessions lasting 45 minutes, resulted in increases in posttraumatic growth after treatment and better overall treatment outcome. Furthermore, PE and CPT were the only two psychotherapies

selected by the VA and DOD for expansive dissemination within their healthcare facilities (Sharpless and Barber, 2011).

A meta-analysis of six studies examining the effectiveness of CPT found that it was successful in alleviating PTSD symptoms associated with mild (e.g., loss of a pet) and severe (e.g., witnessing death of a friend or family member) traumas for military and civilian populations (Cahill, Rothbaum, Resick, and Folette, 2008). Graca, Palmer and Occhietti (2012) found CPT is an effective treatment for PTSD in a VA residential setting, based on pre and post scores of three test different test measures. And Friedman (2005) determined CPT and PE have met the most rigorous scientific criteria for efficacy.

Eye movement desensitization and reprocessing therapy (EMDR), on the other hand, has produced mixed results within current research. Lazrove et al. (1998) found that, of seven adult participants who completed three 90-minute sessions of EMDR, none met criteria for PTSD, as stated in the Diagnostic and Statistical Manual-III-R (American Psychiatric Association [APA], 1987), two months after treatment. Högberg et al. (2008) also found that 17 participants with chronic PTSD did not meet criteria, as stated in the Diagnostic and Statistical Manual-IV (APA, 1994), directly after treatment, as well as at 8 and 35 months after treatment.

However, in a study by Lee and Drummond (2008), EMDR, when administered to 48 participants over one session and measured one week later, reduced distress but not vividness associated with traumatic memories. A lack of strong empirical evidence and theoretical groundwork in the veteran population (i.e., some scholars believe EMDR is based solely on imaginal exposure and/or an educational structure) for EMDR are given as the main reasons by military and veterans' health agencies for continuing research into its effectiveness as a treatment for PTSD (Sharpless and Barber, 2011; Institute of Medicine, 2007). Dworkin (2003), in his case study analysis of EMDR as an effective therapy, did not dismiss it as invalid. Rather, he suggested that aspects of the therapeutic relationship that develop between the clinician and client during EMDR, including empathy, transference, and countertransference, are commonly misunderstood, overlooked, or both, decreasing the benefits the therapy has to offer.

Current literature also suggests many veterans, especially females, present to VA Primary Health Clinics with physical complaints, which may be the result of or include underlying mental health issues (Friedman, 2005; Shiner, 2011). Consequently, any symptoms of PTSD or other mental health disorders veterans may have can go undetected by clinicians.

However, changes within the VA, such as the integration of primary care and mental health departments, has greatly improved this screening process (Sadler, Booth, Nielson, and Doebbeling, 2000; Valente and Wight, 2007). Additional studies indicate there are several factors which may influence veterans' participation in and completion of PTSD treatment, including severity of PTSD symptoms, health, family and work commitments, motivation for change, and family involvement/social support before, during, and after treatment (Kutter, Wolf, and McKeever, 2004; Batten et al., 2009).

The VA offers several programs for the treatment of PTSD. These services, as with any VA care, are offered to all veterans who have: a) completed active military service in the Army, Navy, Air Force, Marines, Coast Guard, or Merchant Marines During World War II or are

National Guard members or reservists who have completed a federal deployment in a combat zone and b) been discharged under other than dishonorable conditions (NCPTSD, 2010).

Each program offers evaluation, education, and treatment. The program services include: a) one-to-one mental health assessment and testing, b) medication, c) one-to-one psychotherapy and family therapy, and d) group therapy, which covers topics such as combat support, anger and stress, and partner relationships. Additionally, every VA medical center has providers trained to provide PTSD treatment.

Designated VA medical centers also offer one or both of two unique PTSD treatment programs. The first is Specialized Outpatient PTSD Programs (SOPPs). Three types of outpatient clinics comprise SOPPs which allow veterans to meet with a provider on a regular basis: a) PTSD Clinical Teams (PCTs) provide group and one-to-one treatment, b) Substance Use PTSD Teams (SUPTs) treat the combined issues of PTSD and substance use, and c) Women's Stress Disorder Treatment Teams (WSDTTs) offer women veterans both group and one-to-one treatment.

The other unique PTSD treatment program is called Specialized Intensive PTSD Programs (SIPPs). Treatment services are carried out in a therapeutic environment. Many of the individual programs under SIPPs are residential, where veterans live at the VA facility during treatment. Social, recreational, vocational activities and counseling are part of SIPPs. Programs include: a) outpatient PTSD Day Hospitals, which provide one-to-one and group treatment for 4 to 8 hours on a daily basis, b) Evaluation and Brief Treatment of PTSD Units (EBTPUs), which provide PTSD treatment for a short time ranging from 14 to 28 days, c) PTSD Residential Rehabilitation Programs (PRRPs), which offer PTSD treatment and case management, with the goal of helping trauma survivors return to a healthy, functional life within their communities; stays in this program are commonly 28 to 90 days long, d) Specialized Inpatient PTSD Units (SIPUs), which offer trauma focused treatment within a VA facility for an average length of 28 to 90 days, e) PTSD Domiciliary (PTSD Dom), which provides residential treatment for a designated time period, with a goal of assisting veterans in improving their mental and physical health and transitioning to outpatient mental health care, and f) Women's Trauma Recovery Program (WTRP), which is a 60-day residential program focused on war zone-related stress and MST and allows veterans to work on their social skills so they may deal more comfortably with others (NCPTSD, 2010).

The Saint Cloud VA PTSD residential treatment program was started in 2000 and initially was limited to providing group trauma exposure for combat veterans, which was the most effective therapy available at that time. In 2007, this program expanded to include offering CPT in a format combining group CPT with individual trauma processing. The Saint Cloud VA was one of the first VA facilities to make this addition. Shortly after making this change, the three evidenced-based individual trauma processing therapies, PE, CPT, and EMDR, were made available in the program. Currently, however, only CPT and PE are being offered. All PTSD program staff members who provide psychotherapy are certified in either CPT or PE, or both. Since the inception of this program, outcome data has been collected to assess effectiveness, efficiency, and satisfaction as they relate to the services provided. The outcome data management system was developed and has been continually modified to conform to the Commission on Accreditation of Rehabilitation Services (CARF) standards (2008).

Veterans entering into the Saint Cloud VA PTSD residential program have an established diagnosis of PTSD. Diagnosis is established after evaluation by a mental health professional. For the purposes of this project, diagnosis will be confirmed by reviewing the veterans' problem lists, psychiatric evaluations and/or psychological evaluations. They enter the 45-day PTSD program as a cohort group of up to 16 veterans per group. After assessing their needs, they are assigned to either the group trauma exposure track or the CPT track. All veterans in the group trauma exposure track have combat-related PTSD and those in the CPT track have PTSD resulting from combat and/or non-combat.

Veterans in the CPT track are assigned an individual therapist for trauma processing. The individual therapist provides either CPT or PE. All veterans in the CPT track participate in a 3-4 times weekly CBT group focused on work on their cognitive distortions and negative beliefs. Veterans in the group trauma exposure track do their trauma processing in a group setting. They participate in a 4 times weekly trauma processing group. Veterans in both tracks attend PTSD psychoeducational and skill building groups together (e.g., stress management, seeking safety, spirituality, and anger management groups).

All veterans who enter the Saint Cloud PTSD program also receive a battery of clinical outcome measures upon admission into and discharge from the program. These measures include the Beck Anxiety Inventory, Beck Depression Inventory-II, PTSD Checklist, and Posttraumatic Growth Inventory. Up until 2009, 6- and 12-month outcome data was also being collected; approximately 40% of graduates from the program completed measures at one or both follow-up times. In addition, data is also collected on completion rate and veteran satisfaction with individual therapies and psychoeducational groups offered.

The knowledge base for the effectiveness of various PTSD treatments offered in VA settings is still transforming and expanding. In fact, the IOM, at the request of the DOD, is currently conducting a study of all PTSD treatments offered at VA and DOD facilities to determine the best method(s) for screening, prevention, treatment, and rehabilitation of active duty military personnel and veterans with PTSD (Levin, 2011).

A summary of the literature reveals valuable information for the advancement of PTSD treatment. Even though PE, CPT, and EMDR are currently supported by empirically-based evidence, future research will help solidify their foundation as sound and effective PTSD treatments and offer insight into ways in which they can be improved. Additionally, potential studies that sample the veteran population can help clarify the effectiveness of these therapies with the VA. This research project was developed for just that purpose. An evaluation of a VA PTSD residential treatment program is being proposed to answer the following research question: How does a PTSD program offered through the VA affect symptoms PTSD and depression in veterans who have completed treatment?

### **Objective/Hypothesis:**

- 1) Veterans who receive any of the evidence-based individual psychotherapies (i.e., PE, CPT, or EMDR) will show a reduction in symptoms of PTSD and depression upon discharge from the program, will show a slight increase in symptoms at 6-month follow-up and a leveling off of symptom intensity by 12-month follow-up. These findings will vary by veterans' demographic characteristics, including age and ethnicity.

- 2) There will be no significant differences between PE, CPT, and EMDR in their effect on veterans' symptoms of PTSD and depression.

**Significance:** The most recent literature regarding the best evidence-based therapies for PTSD forms a consensus that PE, CPT, and EMDR are evidence-based. The VA and DOD have made a commitment to providing evidence-based psychotherapy for PTSD to our combat veterans. Another group of veterans that has been identified for targeted psychiatric services are males and females with PTSD due to military sexual trauma (MST). To fulfill this commitment, the VA's well-established network of residential PTSD programs have expanded to provide services to veterans with non-combat-related and combat-related PTSD and to accommodate female veterans.

As one of the VA residential PTSD programs that has offered CPT, PE, and EMDR (and continues to offer CPT and PE), this proposed comparative study will explore the effectiveness of these therapies on symptoms of PTSD and depression over time (i.e., at pre, post, 6-, and 12-month follow-up points of measurement). Thus, the findings, while lacking in methodological rigor, due to such factors as a non-random sample, will provide valuable information for the future of the Saint Cloud PTSD program, as well as generalize to other PTSD residential treatment settings in the VA.

**Sample Identification:** All veterans who were admitted to the Saint Cloud PTSD residential program from August, 2006 to September, 2009 and completed pre, post, 6-, and 12-month follow-up measures are to be included in the sample. Criteria for admission to the program includes: a) established diagnosis of PTSD, b) sobriety for 45 days prior to admission if the veteran had a prior substance abuse or dependence diagnosis, c) stability on psychotropic medications, d) no suicide risk for at least two weeks prior to admission, and e) the veteran has not completed a PTSD program in the last year.

**Data Collection:** Outcome data from the Beck Depression Inventory-II and PTSD Checklist from the Saint Cloud PTSD residential program will be utilized. A chart review will also be conducted to gather some demographic information (i.e., age and ethnicity) and type of therapy received on subjects included in the sample.

**Statistical Analysis:** Data will be collected and stored on an Excel spreadsheet. Data will be analyzed at the Saint Cloud VA using SPSS software. Analyses of outcomes will include comparisons of pre- and posttest measures; and follow-ups. ANOVAs, t-tests, and correlations will be used for continuous variables. Chi-square tests will be used for nominal or categorical data. Regression analysis will also be used for continuous and/or categorical variables.

**Timeline:** This project must be completed by May, 2012, in order to satisfy graduation requirements set forth by the student's Master of Social Work Program through the University of Saint Thomas and Saint Catherine's University.

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