Therapeutic Horseback Riding With Military Veterans: Perspectives of Riders, Instructors, and Volunteers

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Abstract

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Statistics reveal that over 353,000 military members have been diagnosed with PTSD and/or TBI resulting from war-related activities. With the rising number of war stress injuries, there have not been enough psychotherapeutic services to meet the current demand for the care of returning veterans from Iraq and Afghanistan. Although some intervention strategies have been deemed successful, the current standards of care (e.g., exposure therapy, cognitive therapy) are limited by training inadequacies, accessibility, and outcomes (e.g., retention, early drop out, resistance, non-responsiveness). Furthermore, it is unclear whether these treatments are efficacious in addressing the unique symptom presentations of this population. The unavailability of services and their tendency to inadequately address the needs of veterans has opened the door to the development of alternative and complementary approaches. One such new approach was the therapeutic use of animals, specifically horses, as a treatment option for returning military members. Preliminary studies of therapeutic horse activities, while methodologically flawed, suggest clinical benefits for veterans. The purpose of this qualitative case study was to describe the activity and *unique experience* of THR as an

intervention used with military veterans struggling with war stress injuries. The perspectives of nine veterans, equine instructors, and volunteers were collected through in-depth interviews, observations, and audio/visual material. Through phenomenological analysis, a comprehensive understanding of THR, what it involves, what happens to the veterans as they relate to the horse and interact with it, and how this intervention impacts the veterans' recovery process was garnered. Four primary themes were identified: community support, relationship, transferable skills, and motivation. The data from this study reflected clinically significant results, suggesting THR was efficacious for veterans and their recovery process, especially for those who did not respond well to traditional treatments. It is recommended that future research efforts be conducted to support the development of standardized curriculum, therapeutic practice, and assessment measures in order to refine THR and allow insurance panels, stakeholders, and providers to fund, resource, integrate, and recommend THR; increasing its accessibility for members of the military with war stress injuries. The electronic version of this dissertation is at OhioLink ETD Center, www.ohiolink.edu/etd

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Introduction

The conflicts in Iraq and Afghanistan have resulted in a large cohort of military members exposed to war stress injuries that result in psychological and neurological trauma (McAllister & Stein, 2010). As of February 2014, Fischer (2014) reported statistics regarding the prevalence of U.S. military casualties, post-traumatic stress disorder (PTSD), traumatic brain injury (TBI), amputations, and self-inflicted wounds/deaths in Operation Enduring Freedom (OEF, Afghanistan), Operation Iraqi Freedom (OIF, Iraq), and Operation New Dawn (OND, Iraq). Fischer reported over 6,500 U.S. military personnel were killed in action, while another 50,000 sustained physical combat injuries. She reported that over 118,000 military personnel were diagnosed with PTSD whereas 235,000 military personnel were diagnosed with TBI. These acquired psychological and neurological injuries are largely *invisible* and therefore hard to recognize and diagnose despite their pervasive and substantial effects. Additionally, many military personnel return with *visible* injuries and permanent impairments. Fischer reported that over 1,550 military personnel have needed major amputations and approximately 340 service members died of self-inflicted wounds while serving in OIF, OEF, and OND.

Efforts from the mental health field have been made to help with the rising number of returning veterans, with both visible and invisible wounds. Although some intervention strategies have been deemed successful, the current standards of care (e.g., exposure therapy, cognitive therapy) are limited by training inadequacies, accessibility, and outcomes. Reasons for discontinuing services included stigma, confidentiality concerns, ineffective treatments, and discomfort with the treating clinician or treatment

intervention (Gibbons, Migliore, Convoy, Greiner, & DeLeon, 2014; Hoge et al., 2014; Zinzow, Britt, McFadden, Burnette, & Gillispie, 2012). Furthermore, it is unclear whether these treatments are efficacious in addressing the unique symptom presentations of this population. Therefore, "it appears that the use of mental health services among military personnel and veterans does not parallel expected prevalence and need, underscoring the importance of efforts to identify factors that influence mental health service use within these populations" (Vogt, 2011, p. 135).

The unavailability of services and their tendency to inadequately address the needs of veterans has opened the door to the development of alternative and complementary approaches including the use of animal-assisted therapy (AAT) (e.g., Klontz, Bivens, Leinart, & Klontz, 2007; Sockalingam et al., 2008). Scientific literature (Beck et al., 2012; Fine, 2006; King, 2007) suggests that the therapeutic use of animals (e.g., dog, cat, horse, etc.) can lead to psychological, physiological, and neurological improvements. More specifically, Equine Facilitated Mental Health/Learning Services (EFMH/LS) such as equine facilitated therapy (EFT) and therapeutic horseback riding (THR) have demonstrated promising results with varying populations, of diverse age and diagnosis. According to Lancia (2008), EFMH/LS helps restore military personnel's adaptive capacities such as emotional regulation responsive problem solving. Thus, it was postulated that this developing field might also constitute an efficacious treatment modality for the military population.

While testimonials stating the benefits of therapeutic horse activities are profuse, there is a dearth of quantitative research regarding this intervention for veterans and thus little empirical evidence indicating that it provides statistically significant results. In

spite of this, THR facilities for veterans are becoming more popular in the U.S. (Professional Associated of Therapeutic Horsemanship International [PATH Inti.], n.d.), and the use of Animal Assisted Interventions (AAI) in general are becoming more common in veteran hospitals. What makes the experience of this intervention powerful and transformative for veterans is no better understood, as there is a paucity of research on the qualitative experience of veterans using THR as well. So while THR does not appear to be iatrogenic, it is unclear if it provides clinically meaningful results (Anestis, Anestis, Zawilinski, Hopkins, & Lilienfeld, 2014).

A recently published article by Anestis et al. (2014) assessed the quality of peer-reviewed research on therapeutic horse activities. Researchers selected 14 quantitative studies, 10 of which were with children and/or adolescents. Criteria selection was limited to studies that used an experimental protocol and report findings suggestive of the effectiveness of the administered intervention. According to their review:

> All studies were compromised by a substantial number of threats to validity, calling into question the meaning and clinical significance of their findings. Additionally, studies failed to provide consistent evidence that [equine-related treatments] is superior to the mere passage of time in the treatment of any mental disorder. (p. 1)

Based on four adult studies, Anestis et al. (2014) asserted, "Such services should not be offered to the public unless and until well-designed studies provide evidence that justify different conclusions" (p. 1), and advised the military to urge consumers to avoid such treatments. This claim seemed far-reaching as it evaluated such a small number of studies, and targeted a different diagnostic population (i.e. adults diagnosed with schizophrenia and intellectual disabilities, rather than trauma-related presentations). Their claim also failed to account for the qualitative investigation or review of current

testimonials, reports that may have fleshed out quantitative findings and given meaning to the numbers and figures presented. Anestis et al. also focused on statistical significance, excluding the clinical significance, therapeutic horse activities may offer its consumers. By including the practical and palpable information regarding the treatment effect, data regarding noticeable changes in one's daily life may have surfaced.

After reviewing the literature, only six research studies specifically addressed the therapeutic benefit veterans may gain from working with horses (Abrams, 2013; Asselin, Penning, Ramanujam, Neri, & Ward, 2012; Duncan, Critchley, & Marland, 2014; Gilling, 2013; Monroe, Myers, & Sanchez, 2012; Selby & Smith-Osborne, 2013). These studies provide quantitative statistics and qualitative descriptions of the veterans' experiences of working therapeutically with a horse. In each report, veterans indicated various benefits of THR including emotional, social, and physical improvements. Although these studies provide preliminary evidence of the advantages of THR, more research is merited to establish acting mechanisms involved and the clinical value of this intervention.

The purpose of this case study is to describe THR as an activity with a particular eye for its potential clinical value as an effective treatment for veterans with war stress injuries. The activity of THR will be described from the perspectives of military veterans, equine instructors, and volunteers located within an organization. An intrinsic case study approach is used to promote a greater understanding of what the participants' found powerful and transformative about THR. An advantage of using an intrinsic case study approach is that it provides a detailed account that demonstrates the *unique experience* of THR for veterans with war stress injuries (Stake, 2010). The underlying

assumption of this approach "is that there is an essence or central meaning of an experience shared by individuals that can be investigated and explained through research" (Hancock & Algozzine, 2006, p. 9). Through semi-structured interviews, nine participants were asked to describe their experience of THR. Through the rigorous phenomenological analysis of data, a comprehensive understanding of THR, what it involves, what happens to the veterans as they relate to the horse and interact with it, and how this intervention impacts the veterans' recovery process emerged.

Literature Review

War Stress Injuries Within Military Culture

To account for the spectrum of neuropsychiatric injuries and medically unexplainable (or "psychosomatic") conditions that constitute the emotional, physical, and relational fallout of war, the term “war stress injury” is used to refer to the detrimental impact of war-related activities. These activities include, “combat operations, terrorist attacks, disaster relief, humanitarian assistance, sexual assault, prisoner-of-war exposure, and military training accidents” (Russell & Friedberg, 2009, p. 24). War stress injuries develop from uncontrollable, chronic, and excessive exposures to combat-related situations and are linked to physiological and structural alternations in the brain and body (Cozolino, 2010). Russell (2012) described the term as follows:

> It is a well-established, albeit uncomfortable, and conveniently ignored historical, medical, and scientific fact that human adaptation to uncontrollable, unpredictable, and potentially traumatic stress "causes" or significantly contributes to a wide-range of neurobiological, physical, cognitive, emotional, and behavioral changes that, when chronic and/or severe enough, will inevitably cause significant physiological alterations in the brain-mind-body, eventually leading to physical and/or psychological breakdown. (para. 2)

When conceptualizing the spectrum of war trauma from this orientation, it is nearly impossible to account for the true prevalence of its impact. Studies have tried to organize the overwhelming numbers of people with war stress injuries into categories of psychiatric diagnoses such as PTSD, TBI, depression, substance abuse, panic attacks, sleep disturbances, and anxiety in order to demonstrate the pervasiveness of war stress injuries (Hunt, Wessely, Jones, Rona, & Greenberg, 2014; Taal, Vermetten, van Schaik, & Leenstra, 2014; Zamorski & Boulos, 2014). These studies illustrate the difficulty in obtaining epidemiological statistics as the prevalence estimates differ substantially within

and across nations. For instance, the prevalence rates of war stress injuries usually include only those who have been officially diagnosed within these common mental health categories. Thus, statistics are limited by only capturing the number of veterans who met full criteria for a mental health diagnosis. To complicate matters further, the onset of symptoms related to neuropsychiatric injuries may not manifest until months or years after the injuries initially occur (Cozolino, 2010). Unfortunately, it can be estimated that the numbers of those experiencing psychological and neurological distress as a result of war stress injuries are highly underestimated.

The prevalence of war stress injuries are not just increasing because of the time it takes neuropsychiatric issues to arise. The increasing frequency of military personnel who endure multiple deployments and longer tours appears to also play a significant role in the prevalence of war stress injuries. According to Williamson and Mulhall (2009), "Service members are still deploying on long and repeated combat tours, which increases the risk of blast injuries and combat stress" (p. 1). The Army's Mental Health Advisory Team (MHAT-V, 2008) found that military members deployed to Iraq for longer than six months, or those deployed multiple times, were more likely to experience war stress injuries. Furthermore, even after returning home, military personnel who endured multiple deployments, or had been deployed for longer periods of time, were at a higher risk for developing war stress injuries than military personnel who participated in a short-term single deployment (Tanielian & Jaycox, 2008).

The text below describes the primary and secondary impacts of war stress injuries. As illustrated above, the spectrum and severity of war stress injuries is pervasive. These sections are not meant to capture all primary and secondary impacts but

rather provide a general picture of the issues and circumstances of war stress injuries military members and their families face during and after deployment.

Primary impact of war stress injuries. As indicted above, with the spectrum of war stress injuries that veterans may acquire during military training and/or combat exposure, it is difficult to fully cover their prevalence and impact (Castro, 2014; Hunt et al., 2014; Zamorski & Boulos, 2014). Particular war stress injuries, such as PTSD and TBI, have been researched extensively due to their pervasive occurrence among veterans and have been deemed as "the two signature injuries" of the Iraq and Afghanistan wars (U.S. Department of Defense Task Force on Mental Health, 2007). These conditions have captured the attention of the public and military, however, at least 15 other neuropsychiatric issues (e.g., adjustment disorders, ADHD, impulse control disorder, panic disorder, military sexual trauma, social phobia, bipolar II disorder, conversion disorder, dissociative disorder) and medically unexplained physical symptoms (e.g., fatigue, fibromyalgia, palpations, insomnia) are diagnosed in addition to or separate from PTSD and TBI (Russell, 2012). Unfortunately, this limits this discussion to the nature and epidemiology of the most common injuries, PTSD and TBI, which the following section describes, concluded with a discussion on comorbidity.

Post-traumatic stress disorder. *Diagnostic criteria*. According to the Diagnostic Statistical Manual-5 (DSM-5), a diagnosis of PTSD is warranted when a person is exposed "to actual or threatened death, serious injury, or sexual violence" through direct exposure, witnessing, learning about the trauma of a significant person, or enduring repeated or significant exposure to details of traumatic events (American Psychiatric Association [APA], 2013, p. 271). In response to these events, a person develops

intrusive symptoms (e.g., distressing memories or dreams, flashbacks, and intense psychological and/or physiological distress), persistent avoidance, changes in mood (e.g., intense feelings of fear, horror, shame, anger), cognitive impairments (e.g., dissociative amnesia, memory loss, negative beliefs about oneself, blaming), and increased states of arousal and reactivity that are present for more than one month. These types of symptoms and traumatic experiences are common in combat situations (e.g., exposure to warfare, training, or other military-related events) and often cause feelings of horror, fear, helplessness, distress, detachment, and anger; severely impairing a military personnel life after combat (Castro, 2014). The military population may be especially vulnerable to these experiences due to the repeated and prolonged exposure to ongoing combat events.

According to Cozolino (2010), PTSD reflects the dysregulation of a whole host of neurological and physiological networks. PTSD is produced by the decreased ability to manage neurobiological processes that are responsible for perceiving (or in this case misperceiving) and reacting to actual threats. He claims the hallmark symptoms of PTSD—hyperarousal, intrusion, and avoidance—indicate a loss of integration among the neural networks that govern cognition, sensation, affect, and behavior. Therefore, psychological trauma brought about by the experience of combat exposure reflects a persistent and abnormal alteration of the neurobiological system as a whole (Sherin & Nemeroff, 2011). Furthermore, combat-related PTSD may become chronic, which is often accompanied by devastating and enduring impacts on neurological functional and structural impairment.

Epidemiology. The epidemiology of PTSD from the Afghanistan and Iraq era has been an ongoing debate. Since the 1980s, combat-related PTSD has created a military

mental health crisis as it was deemed as the most common outcome of combat exposure (Institute of War Stress Injuries, Recovery, and Social Justice, n.d). According to the Institute of Medicine (2012), "Estimates of lifetime PTSD prevalence in service members deployed to OEF and OIF are two to three times those in the general population [and] . . . estimates of mental health burden based on service records probably underestimate the burden in these populations" (p. 39). Earlier studies found that between 13 and 20% of military personnel returning from combat met diagnostic criteria for PTSD (Brancato, Gottfried, & Wheeler, 2008; Tanielian & Jaycox, 2008). Most recently, Fischer (2014) reported over 17,000 active duty combat veterans are diagnosed every year for PTSD, totaling over 118,000 cases.

Despite these shocking estimates, studies report discrepant epidemiological statistics. These discrepancies are influenced by a variety of factors including ways in which epidemiological data is collected, sample size, the severity of oscillating symptoms, differences in populations, screening measures, and the length of time after military personnel returned from deployment (Stevelink et al., 2014). As seen in Hoge et al. (2004), a widely cited source for prevalence estimates, rates are elevated in investigations that employ anonymous self-report measures and contrast non-deployed versus deployed groups.

More recently, Zamorski and Boulos (2014) reviewed epidemiological research in Canadian Armed Forces and found the prevalence of PTSD post-deployment varied from 8 to 20%. Likewise, Stevelink et al. (2014) performed a systematic review of seven studies, which examined the spectrum of mental health issues in the U.S. military population specific to members with some type of physical impairment (e.g., amputation,

visual/hearing problems, etc.). Reports of PTSD ranged between 2 to 59%, with the highest prevalence in U.S. military members with injuries requiring amputations. Across different countries, the U.S. military had the highest reports of PTSD for members deployed to Afghanistan compared to Canada, Australia, and the UK (Castro, 2014; Hunt et al., 2014; Zamorski & Boulos 2014). However, Sundin et al. (2014) compared rates of the war-related psychological issues between the U.K. and U.S. and found that once self-reported data was removed, the discrepancy between the two countries lessened.

Higher rates of PTSD are also found in longitudinal studies in which the participants act as their own controls (e.g., Sundin, Fear, Iversen, Rona, & Wessely 2010; Tanielian & Jaycox, 2008). This was demonstrated in Milliken, Auchterlonie, & Hoge's (2007) study, which compared mental health evaluations from 80,000 troops. Their study found that after returning from war, 17.2% met criteria for a mental health issue. This number nearly doubled after six months as the rate of mental health issues reported by military members raised to 30.1%. This trend was also reflected in the National Council on Disability (NCD, 2009) report, which indicated that research predicts that between 10 and 30% of military members will acquire PTSD within one year of returning from combat. Given this information, it is uncertain whether recovery data was obtained. If so, this information may have illustrated how recovery rates changed in immediate versus delayed onset of PTSD. Furthermore, late onset symptoms are more difficult to detect and given lessen credibility while also being more difficult to treat. In summary, it is clear that the PTSD is increasing with each cohort of returning military personnel. It is likely these rates are an underestimate, as myriad clinical presentations (as well as time, age, cohort, and other risk factors) sampling strategies, and inadequate diagnostic

assessments/screens, make it difficult to generate accurate epidemiological estimates (Yehuda, Vermetten, McFarlane, & Lehrner, 2014).

Traumatic brain injury. *Diagnostic criteria.* The U.S. Veterans Affairs/ Department of Defense (VA/DoD) Clinical Practice Guideline for Management of Concussion/Mild TBI (2009) defined the diagnostic criteria for a TBI based on the American College of Rehabilitation Medicine's classification as a:

> Physiological disruption of brain function as a result of a traumatic event as manifested by at least one of the following: alteration of mental state, loss of consciousness (LOC), loss of memory or focal neurological deficit that may or may not be transient. (p. 18)

Within the context of military training and combat exposure, bullets or shrapnel can injure the head or neck as well as blasts from roadside bombs, mortar attacks, or other explosions, which may cause closed or open head injuries (Warden, 2006). Severe or open head injuries are attended to immediately, whereas closed head injuries are more difficult to recognize (VA/DoD, 2009). Injuries to the head and neck cause devastating neuropsychiatric symptom constellations that vary from solider to solider. Commonly reported symptoms include impaired cognitive functioning (e.g., memory, decision making, attention, delayed cognitive processes, and concentration deficits) physical complaints (e.g., fatigue, disordered sleep, headache, hearing, vision, speech, sleep, and dizziness) and emotional and behavioral changes (e.g., impulsivity, irritability, anxiety, and depression; Sayer, 2012). These changes in cognitive, physical, emotional, and behavioral domains can make the simplest tasks difficult and overwhelming. Further, the effects of TBI may not be immediately apparent which can delay treatment and lead to exacerbated neurological problems that are more severe and/or chronic such as

Alzheimer's and Parkinson's disease (National Institute of Neurological Disorders and Stroke [NINDS], 2002).

Epidemiology. With technological advancements in protective gear as well as improvements in emergency care services, military personnel are better equipped to survive penetrating and closed head injuries to the brain (Lew, Cifu, Crowder, & Grimes, 2012). Similar to PTSD, the exact prevalence of TBI is difficult to determine, especially in regards to mild TBI and injuries with later onset. These types of wounds have been reported as particularly prevalent in Iraq where about 68% of over 33,000 military personnel were injured from blast related events (Warden, 2006). However, Taylor and colleagues (2012) reported statistics from 2009 VA medical records and found that 6.7% of the 327,388 OEF/OIF veterans received a TBI diagnosis.

Discrepancies continue to be found in the literature. Lew et al. (2009) found that 66.8% of 340 OIF/OEF veterans assessed at VHA between 2007 and 2008 were screened positive for TBI. More recently, Cifu et al. (2013) found that out of the 613,391 veterans seen at VHA between 2009 and 2011, 9.6% screened positive for TBI. The substantial difference in TBI rates among these studies may due to the screening processes used. Although both studies looked at the interactions of pain, TBI, and PTSD, participants in Lew et al.'s study had already screened positive for TBI whereas Cifu et al.'s participants mostly presented with mental health concerns. Thus, these participants may not have been seeking assistance specifically for TBI or their TBI symptoms may have been overlooked due to complaints of PTSD, pain, etc. Most recently, Fischer (2014) reported over 235,000 TBIs since 2000, in which 82% were mild, 8% were moderate, and 2.5% were severe or penetrating. In 2013, 20,250 military personnel sustained a TBI, a

significant decrease compared to 2011 and 2012 where over 30,000 TBIs were reported per year. Interestingly, forced deployment was decreasing during this time as well.

How comorbidity complicates the picture. PTSD and TBI have been deemed as "the two signature injuries" of the Iraq and Afghanistan wars (U.S. Department of Defense Task Force on Mental Health, 2007). This statement is misleading as deployed veterans return with a much larger spectrum of war stress injuries. Firstly, it has been documented that these two injuries often occur simultaneously. K. F. Carlson et al. (2011) comprehensively reviewed various studies published between 1980 and 2009. Researchers found that 32 to 66% of service members were dually diagnosed with PTSD and TBI. Secondly, comorbid Axis 1 diagnoses have been widely documented in the literature and may occur in over 50% of OEF/OIF veterans with PTSD (Hoge et al., 2004; Santiago et al., 2010). For instance, PTSD and depression often co-exist with TBI (Corrigan & Cole, 2008). After reviewing VA medical records of OEF/OIF military personnel diagnosed with TBI, proximally 75% of them also had a diagnosis of PTSD and almost 50% were diagnosed with depression (Taylor et al., 2012). The NCD (2009) predicted that between 10 and 30% of military members would acquire PTSD within one year of returning from combat. When including other mental illnesses such as depression, generalized anxiety disorder (GAD), and substance abuse, the prediction increases to 16 to 49%. This trend has been supported by more recent research regarding the comorbidity of depression, anxiety, substance use, and suicidal ideation with combat-related PTSD and TBI (Boden, Bonn-Miller, Vujanovic, & Drescher, 2012; Bryan & Corso, 2011; Humphreys et al., 2012; Pietrzak et al., 2010; Possemato, Wade, Andersen, & Ouimette, 2010; Rauch et al., 2010).

War stress injuries also increase alcohol and drug abuse and comorbidity ranges from 12 to 40% (Hoge et al., 2004; Jacobson et al., 2008; Milliken et al., 2007; Wilk et al., 2009). According to Milliken et al. (2007), 12% of military personnel reported alcohol problems on their post-deployment health assessment forms. However, a mere 0.2% of them were referred for help. Williamson and Mulhall (2009) reported that an estimated 27,000 of military personnel deployed to Afghanistan and/or Iraq reported excessive use of drugs and alcohol while 16,200 met criteria for drug addiction. Williamson and Mulhall (2009) warned, "These numbers are only the tip of the iceberg; many veterans do not turn to the VA for help coping with substance abuse, instead relying on private programs or avoiding treatment altogether" (p. 10). Therefore, the reported numbers likely represent a much lower estimate of veterans struggling with drugs and alcohol. One reason why this may be is that drug and alcohol treatment is not confidential because "accessing alcohol treatment triggers automatic involvement of a soldier's commander" (Williamson & Mulhall, 2009, p. 2146), which can have serious ramifications that impact military personnel's careers.

As this picture becomes more complicated, the risk of suicide increases. The war stress injuries mentioned above, share precipitating factors with suicidality (Lemaitre & Graham, 2011). Thoughts of suicide and suicide attempts often go unreported but the estimates of completed suicides range between 9 to 15 deaths per 100,000 military members and is the second leading cause of death in the U.S. militarily (Ritchie, Keppler, & Rothberg, 2003; U.S. Department of Defense, 2007). The VA reported that between 2002 and 2006, approximately 254 Iraq and Afghanistan veterans committed suicide.

More recently, rates of completed suicides based on statistics from 2012 are projected to be 22.1 per 100,000, a two-fold increase from 2008 (Bromberg, 2013).

These figures are not conclusive, as the reported rate of confirmed suicides is suspected to be vastly underreported (Zoroya, 2008). This suspicion was heightened in 2008 when CBS news broadcasted that the VA had been releasing inaccurate information; minimizing the rates and risk of suicide among Iraq and Afghanistan veterans (Keteyian, 2010). Evidently, internal VA emails were exposed which showed that the VA was reporting 790 veteran suicide attempts yearly when the figures were more than 1,000 attempts a month. Kemp and Bossarte (2012) reported that 8,000 veterans commit suicide each year, averaging 22 suicides per day whereas estimates of active duty members average one suicide every 36 hours.

Secondary impact of war stress injuries. The section above demonstrates the complicated picture of the symptomology and epidemiology of the war stress injuries frequently cited in the military and public sector. However, because of the narrow focus on PTSD and TBI, there is less published literature demonstrating the widespread impact these injuries have on the military member and their family, community, and culture. The Institute of War Stress Injuries, Recovery, and Social Justice (n.d.) cited these secondary effects including, "posttraumatic anger, interpersonal violence, traumatic grief, moral injury, excessive guilt, and misconduct stress behaviors (e.g., atrocities of military sexual trauma) as well as high rates of incarceration, homelessness, healthcare utilization, and unemployment" (para. 27). Beyond these effects, war stress injuries negative relational impact that has had a devastating effect on military families. The following section discusses the impact of war stress injuries on family and marital relations, and

responds to increases in divorce rates, interpersonal violence, and posttraumatic anger. This is followed by a discussion on unemployment, homelessness, and misconduct stress behaviors.

Family and marital stress. Military families and children encounter several challenges related to occupational duties including extended separations, changes in family routines and responsibilities, and adjustments to parenting in order to compensate for changes caused by war stress injuries (Paley, Lester, & Mogil, 2013). While some families dynamics have improved as a result of the separation and manage to maintain positive interactions during and after deployment (Green, Nurius, & Lester, 2013), family relationships and dynamics predominantly suffer from the negative consequences of war stress injuries (Institute of Medicine, 2007).

It is well documented that war stress injuries have emotional, cognitive, physical, and behavioral implications that can have a direct impact on families. This has resulted in decreased intimacy, martial stress, role and responsibility changes, financial strain, loss of social support, and loss of educational and/or employment opportunities (Gorman et al., 2014). Ray and Vanstone (2009) found themes of emotional numbing, emotional withdrawal, and anger associated with family support and relationships, further compounding the healing process of war stress injuries. Furthermore, according to the NCD (2009), an anonymous survey of 532 National Guard members revealed "36% of the deployed acknowledged relationship problems with spouse, 26% relationship problems with children, and 31% emotional numbness that interferes with their relationships" (p. 30).

Concerning marriages and partnerships, research has indicated increased divorce rates (Cook, Riggs, Thompson, Coyne, & Sheikh, 2004) and higher rates of marriage and parenting problems (Shaw & Hector, 2010) related to war stress. Allen, Rhoades, Stanley, and Markman (2011) studied 434 couples in which the husband was an active duty member of the U.S. Army. The authors found that deployment with in past year and concurrent symptoms of PTSD had been "negatively related to virtually all aspects of marital functioning for both husbands and wives…including constructs such as confidence, dedication, and satisfaction with sacrifice" (p. 9). In another study, Sayers, Farrow, Ross, and Oslin (2007) assessed Iraq and Afghanistan veterans who were married/cohabiting and sought behavioral health evaluations from the VA. Two-thirds of veterans indicated some kind of family distress. For instance, 22% were worried that their children were fearful of them or did not respond to them in a warm manner. Furthermore, 56% reported incidences of domestic violence including both verbal and physical abuse.

Intimate Partner Violence (IPV) and posttraumatic anger negatively affect family and social systems. According to Powell, Marquez, and Perkins (2014), "IPV is defined as threats, attempts, or completion of physical, sexual, or psychological harm that is imposed by a current or former intimate partner…[and] is a significant issue within the military environment and warrants an ongoing informed and active dialogue" (p. 178). Sherman, Sautter, Jackson, Lyons, and Han (2006) researched the prevalence of domestic violence among veterans diagnosed with PTSD who sought couples counseling. The study revealed that veterans with PTSD were more prone to engage in violent acts within their family. Male veterans diagnosed with PTSD were two to three times more likely to

engage in partner violence than veterans without PTSD and six times more likely than the general population. Eighty-one percent of the veterans with PTSD or depression reported a minimum of one instance in which they were the perpetuator of violence against their partner. Over half of these veterans also reported one severe violent act within the past year. This rate is 14 times higher than the general population. Similar results were also reported in more contemporary studies, which support the findings of increased IPV and posttraumatic anger within the military community (Powell et al., 2014; Taft et al., 2013).

Children of military families are also impacted by the negative consequences of deployment. According to Cozza et al. (2010), the added presence of war stress injuries creates sudden alterations in living arrangements, parenting practices, schedules, and time spent with children. Chartrand, Frank, White, and Shope (2008) reported that over two million U.S. children have had a parent deployed to Afghanistan or Iraq. Over 19,000 of these children had a parent injured during combat and 2,200 children lost a parent. Children with deployed parents also experience more behavioral and emotional problems and are more often abused as compared to children without deployed parents (Pessar, Coad, Linn, & Willer, 1993). While these experiences are commonly associated with military lifestyle, exposure to IPV may cause children to adopt the abusive and violent behaviors of their caregiver or display behaviors generally associated with learned helplessness (Army One Source, 2013). Several studies have also been published regarding Adverse Childhood Experiences (ACE) associated with IPV within military families including mood and anxiety disorders (Sareen et al., 2013) and increases the odds of adult homelessness and poorer mental and physical well-being (Montgomery, Cutuli, Evans-Chase, Treglia, & Culhane, 2013).

Unemployment. The difficulty with intimate and social relationships as well as anger, lack of concentration, and sleeplessness interferes with employment. People with war stress injuries face unique challenges to finding and maintaining employment (Forbes et al., 2012). For example, it may be more difficult to cope with work stress and as a result, decreases one's ability to display appropriate emotions, complete work-related tasks, and control anger. As a result, military personnel encounter substantial employment difficulties after returning from deployment (Litz & Orsillo, 2008).

Horton et al. (2013) conducted a multivariate analysis to study the influence of deployment experiences on employment rates. This study emphasized the circumstances post-deployment service members face when returning to civilian employment. Researchers assessed multiple factors including demographics, the presence of mental health problems, purpose of military separation, physical health conditions, and deployment and civilian employment statuses. Of the 9099 participants, 17% reported unemployment. Results demonstrated that employment opportunities were impacted by mental and physical health factors. For instance, military personnel with depression and anxiety disorders were less likely to be employed. Participants with poor physical health, black, female, and lower education were also less likely to be employed. Further, the reason for leaving the military was a strong indicator of the number of employment opportunities.

These findings were supported and challenged in Kleykamp's (2013) study, which found that female veterans were more likely to experience steeper employment penalties than their male counterparts. However, black veterans seemed to have less employment penalties when compared to white veterans. This seems counterintuitive, as

the reverse appears to be the case in the general population. With regards to education, "veterans with at least some college education appear to lose some or all of the veteran earnings advantage compared to veterans with a high school degree, suggesting the greatest wage returns to military service accrue among the least educated" (Kleykamp, 2013, p. 837). However, all veterans had lower opportunities of employment when compared to civilians.

Faberman and Foster (2013) assessed the unemployment rates of veterans as compared to non-veterans from 1989 to 2012. Rates of unemployment remained elevated for recent veterans, peaking at approximately 13.9% of the labor force. The current unemployment peak for nonveterans has been around 9.2%. In an attempt to increase employment opportunities for veterans, the America's Heroes at Work campaign was initiated by the U.S. Department of Labor (DOL, 2008) in order to educate employers about the unique issues veterans with war stress injuries encounter and how to better support their needs. However, the degree to which employers offered emotional and financial aid to post-deployed veterans varied. Some employers arranged accommodations for veterans to decrease distractions in the work environment, allowed for greater flexibility in a veterans schedule, or allowed veterans to listen to relaxing music while on the job (Artman & Duckworth, 2007). However, these accommodations do not address the reduction in military salaries that returning military personnel face. According to Litz and Orsillo (2008):

> Some veterans will inevitably have to confront the advancement of their co-workers while their own civilian career has stalled during their military service. While some supportive employers supplement reservist's reduced military salaries for longer than required, the majority does not, leaving many returning military personnel in dire financial situations. (pp. 27–28)

Therefore, financial instability seems to also contribute to a veteran's stress level and may aggravate the already challenging re-adjustment to civilian life and symptoms of war stress injuries (Shaw & Hector, 2010).

Homelessness. As employment rates decrease, the possibility of becoming homeless is likely to increase. Research continues to indicate that a large number of veterans experience homelessness and are more likely to become homeless than their civilian cohort (Gamache, Rosenheck, & Tessler, 2001; Williamson & Mulhall, 2009). Data from the VA suggests that Iraq and Afghanistan veterans make up 1.8% of the homeless veteran population. However, this may be an underestimation as Iraq and Afghanistan veterans account for 3% of the total number of veterans nationwide. Furthermore, compared to previous cohorts of veterans from Vietnam, less time has passed since deployment and viable resources, protecting veterans from becoming homeless, may not yet be depleted. Thus, the reported figures are not precise as the transient nature of the homeless population and the intermittently periods of homelessness that many veterans face, prevent the exact measure of homeless veterans at a given time.

Additionally, studies continue to indicate a higher rate of mental health issues among the homeless veteran population. The 1999 National Survey of Homeless Assistance Providers and Clients found that 23% of homeless individuals were veterans (Bur et al., 1999). Of this 23%, 70% were addicted to drugs or alcohol and 45% had a mental illness including depression, PTSD, schizophrenia, and bipolar disorder. In 2007, a recorded 154,000 veterans were homeless (U.S. Department of Veterans Affairs [VA], 2008). Of these, 45% had a mental health condition, and over 70% abused substances.

More recently, Pavao et al. (2013) performed a cross-sectional investigation of 126,598 homeless veterans. In this sample, 39.7% of females and 3.3% of males had experienced military sexual trauma (MST), including sexual assault and/or sexual harassment, while in service. These veterans also reported higher rates of depression, PTSD, anxiety, substance use, bipolar, personality disorders, and suicide ideation.

In spite of this, some research has found that PTSD does not increase the likelihood of a veteran becoming homeless (Perl, 2008). Instead, personal and economic factors of untreated forms of psychological distress such as violent behavior and social isolation were found to increase the risk of homelessness. Elbogen, Beckham, Butterfield, Swartz, and Swanson (2008) studied the association between unstable living conditions, such as homelessness, and violence among veterans and found that PTSD, schizophrenia, bipolar disorder, depression, and other psychotic disorders exacerbated the risk of aggressive behavior. These authors reported that contrary to Perl's research, the risk of violence was doubled when military personnel also had TBI and PTSD.

More recently, Elbogen, Sullivan, Wolfe, Wagner, and Beckham (2013) conducted a study, which assessed homelessness and money management among Iraq and Afghanistan veterans. Researchers randomly sampled 1090 veterans from all military branches and found that 30% reported money management problems (e.g., losing money due to scam, bouncing/forging checks, exceeding credit limit). A multivariate analysis indicated that money mismanagement increased the likelihood of homelessness as well as other factors such as mental health diagnoses, income, and arrest history. Unfortunately, many homeless veterans are not provided needed aid or assistance to help with money management or war stress injuries. Thus, "if today's veterans continue to

lack access to quality mental health care, the consequences of untreated PTSD will surely result in an increase in the number of Iraq and Afghanistan veterans ending up homeless" (Williamson & Mulhall, 2009, p. 10).

Misconduct stress behaviors. Media and other forms of press have reported on the criminal behavior of OEF/OIF/OND veterans including murders, slaughtering, sexual assaults, and massacres (e.g., Schwartz 2010; Sontag & Alvarez, 2008). These sensational accounts of misconduct have brought great attention to the role veterans' play during and after deployment. These reports also have the effect to ostracize and condemn veterans for these criminal and/or violent behaviors. The U.S. Department of the Army (2006) refers to these behaviors as "misconduct stress behaviors" which range from minor to egregious violations including stealing, alcohol-related incidents (ARIs), MST, torture, mutilating corpses, and intentionally killing combatants and non-combatants. Misconduct stress behaviors may be ways in which war stress injuries manifest, as a result of ongoing tension and irritation, boredom, rapid transitions between military and civilian contexts, lack of debriefing interventions, physical/racial differences, perceptions of hostility or viewing the other as "subhuman," and inadequate medical support (Russell, 2012).

Sexual misconduct is a commonly cited incident within the public and military sector. The DoD (2013) reported to Congress in May 2013 that nearly 3,000 of the 1.4 million active duty members reported MST in which 88% were female victims and 90% were male perpetrators. However, it is likely that the reported number of MST experiences is vastly underreported for both men and women. For instance, Mulrine (2012) examined the 2011 U.S. Army reports, which reported an increase of 64% of

violent sexual misconduct since 2006. Further, 3,191 sexual crimes were reported in 2011, however, unreported assaults are believed to be closer to 19,000 (Jelinek & Burns, 2012).

The outcome of misconduct stress behaviors may lead to incarceration. Tsai, Rosenheck, Kasprow, and McGuire (2013) offered data regarding the characteristics of imprisoned veterans from OEF/OIF/OND. Tsai et al. studied the risk of OEF/OIF/OND veterans becoming incarcerated using data from the Health Care for Reentry Veterans (HCRV) program. Data was analyzed for 30,968 incarcerated veterans, 1,201 of which were from OEF/OIF/OND. Stepwise logistic regressions of HCRV data revealed that this cohort of veterans made up 3.9% of the sample in state and federal prisons. These veterans were more likely to be white, unmarried, younger, unemployed, report combat involvement, have shorter sentences, and were three times more likely to have PTSD. Finding suggested that OEF/OIF/OND veterans were at a lower risk of imprisonment than veterans from other eras but were more likely to be struggling with PTSD while incarcerated.

Evidence-Based Psychotherapy Treatments

As described, war stress injuries affect overwhelming numbers of military members and their families. As a result, a variety of treatment methods have been proposed and implemented for helping veterans with mental health issues. The DoD, which treats active duty service members, and the VA, which treats veterans upon reentering civilian life as well as some active duty members, largely influence the treatment options for war stress injuries (Steenkamp & Litz, 2013). In 2004, and then again in 2010, the VA and DoD published clinical guidelines for treating combat-related

PTSD (VA/DoD, 2010). This chapter reviews the recommended evidenced-based treatments for psychotherapy and pharmacotherapy supported by these guidelines. The final section discusses the problems with implementing these treatment approaches including dropout rates, compliance issues, premature termination, and other pitfalls due to training/disseminating issues, problems inherent to the actual interventions, and research assumptions and design concerns.

Psychotherapies for war stress injuries. The VA/DoD (2010) emphasizes the need for "evidence-based psychotherapeutic interventions for PTSD that are most strongly supported by randomized controlled trails (RCTs)" (p. 115). The VA/DoD currently endorse four evidence-based, trauma-focused psychotherapeutic approaches for individual therapy including exposure therapy, cognitive therapy, stress inoculation training (SIT), and eye movement desensitization and reprocessing (EMDR) for war stress injuries. The VA/DoD deemed these trauma-based approaches as having "significant benefit."

> Trauma-focused psychotherapies for PTSD refer to a broad range of psychological interventions based on learning theory, cognitive theory, emotional processing theory, fear-conditioning models, and other theories. They include a variety of techniques most commonly involving exposure and/or cognitive restructuring…[and] are often combined with anxiety management/stress reduction skills focused specifically on alleviating the symptoms of PTSD. (VA/DoD, 2010, p. 115)

Other approaches are included in the VA/DoD (2010) guidelines such as relaxation techniques, imagery rehearsal therapy, brief psychodynamic therapy, hypnotic techniques, dialectical behavioral therapy, family or couples therapy, and group therapy but are reported to only have "some benefit" and may lack sufficient efficacy evidence.

The World Health Organization (WHO, 2013) guidelines also strongly recommend individual CBT and EMDR as first-line approaches while group CBT, stress management, and psycho-education for PTSD are only considered as moderately effective. The text that follows describes the four dominant evidence-based, trauma-focused, psychotherapeutic interventions for military personnel with war stress injuries, although, most treatments and studies are focused on treating PTSD.

Exposure-based therapy. According to Cukor, Olden, Lee, and Difede (2010), "Exposure-based therapies have the most compelling evidence base and should be used as the first line treatment for PTSD" (p. 82). The Institute of Medicine (2008) also deemed exposure therapy as the *only* PTSD intervention that has sufficient evidence. Exposure therapies, such as brief eclectic psychotherapy and prolonged exposure (PE), involve asking the client to repeatedly, and over increasingly longer periods of time, to confront a feared situation, object, thought, or memory (Craske & Mystkowski, 2006; Domjan, 2010). Developed by Foa, Hembree, and Rothbaum (2007), PE is the most common exposure-based treatment in which military members are "repeatedly exposed to their own individualized trauma stimuli, until their arousal and emotional responses are consistently diminished" (VA/DoD, 2010, p. 124). Exposure-based therapies are grounded in the theoretical assumption that PTSD is a disorder of extinction in which a person's learned response to a traumatic event does not go away because "a message of danger has not been extinguished even when the danger has passed" (Cukor et al., 2010, p. 83). The central goal of this approach is to organize traumatic memories and extinguish the person's conditioned fear response (Foa et al., 2007) by decreasing the

physical or emotional distress a person feels in certain situations by confronting the situations and thoughts that produce stress (Craske & Mystkowski, 2006; Domjan, 2010).

Exposure therapy uses manualized treatment protocols and are typically time-limited, consisting of 8 to 15 sessions (VA/DoD, 2010). During this process, the therapist supports the client while he or she copes with unpleasant emotions or physical symptoms that may arise from the exposure. The protocols follow a guide that generally involves reevaluating the beliefs about the trauma while incorporating techniques that teach relaxation and self-monitoring skills. It is believed that this way of processing traumatic events supports clients to eventually learn new ways of facing, perceiving, and coping with fears and stressful emotions (Foa et al., 2007).

The VA/DoD (2010) reported that exposure-based therapy protocols have "a high level of evidence for treatment of PTSD," especially approaches that use imaginal or in-vivo exposure (p. 123). Imaginal exposure asks the military members to reimage the traumatic events and verbalize the descriptive scenery, thoughts, and emotions where as in-vivo exposure asks the military members to re-expose themselves physically to the feared situation/stimuli. For instance, a veteran may be steadily and gradually encouraged to drive a car again after being injured from a combat-related vehicle incident. Repeated exposures to feared situations are believed to decrease the emotional and physiological intensity, furthering the progress and extent of the next level of exposure (Domjan, 2010).

Cognitive-based therapies. The VA/DoD (2010) and WHO (2013) also consider cognitive therapies, such as Cognitive-Behavioral Therapy (CBT) and Cognitive Processing Therapy (CPT), as best practice and are considered to have the strongest

evidence base of the various modalities of psychotherapy (Cukor et al., 2010). "The primary goal of CT techniques is to improve mood and behavior through a deliberate and explicit focus on modifying dysfunctional thoughts, beliefs, and expectations" (VA/DoD, 2010, p. 119). Thus, it is believed that through challenging and changing beliefs and values about self, others, and the world to ones that are more "accurate" leads to improved emotional and behavioral functioning (McGovern et al., 2009).

This improvement in accuracy of beliefs and thoughts is accomplished through the following steps. First, the dysfunctional beliefs are identified. Then, the identified and maladaptive beliefs are challenged and questioned through the examination of contradictors, or "evidence." Lastly, these inaccurate beliefs are replaced with new ones that are "are more functional, logical, and reality-based" (VA/DoD, 2010, p. 120). The main techniques used in this approach include cognitive restructuring (identifying and questioning acquired or automatic beliefs related to the trauma and substituting those beliefs with more helpful and positive perspectives) and relaxation/anxiety management skills to assist the military members as they examine the meaning of their trauma.

Exposure and cognitive-based treatments share common attributes and may overlap in intervention techniques. According to Corrigan and Cole (2008), CBT is frequently used for people diagnosed with PTSD because it assists with confronting traumatic memories, re-establishing skills for dealing with anxiety, and changing inaccurate thought patterns (Cukor et al., 2010). When addressing PTSD symptoms, CBT uses interventions that ask veterans to re-image the traumatic event, gradually re-exposes them to avoided situations, and questions and restructures thinking patterns. Similarly, CPT combines aspects of cognitive therapy and exposure therapy for the

treatment of PTSD. Comparable to PE, CPT is a time-limited (about 12 sessions), manualized treatment, which has a substantial homework component (Steenkamp & Litz, 2013). In general, it integrates cognitive and exposure elements through initially addressing unhelpful ways of thinking that maintain symptoms of PTSD and "deconstructing assimilated distorted beliefs, such as guilt, and more global beliefs about the world and self" (Cukor et al., 2010, p. 83). This is followed by exposure exercises in which the veterans write about their trauma memories and events. When the veterans re-read the story to the therapist, trauma themes (e.g., safety, intimacy, self-blame, etc.) and "stuck points," or inaccurate statements, are identified and further processed (Resick, Nishith, Weaver, Astin, & Feuer. 2002).

Stress inoculation training. A related cognitive strategy recommended by the VA/DoD (2010) is stress inoculation training (SlT), which incorporates cognitive and exposure strategies with a greater emphasis on anxiety management through breathing and muscle relaxation strategies. SIT interventions attempt to "inoculate" veterans from PTSD symptoms through learning different ways to control stress and anxiety while building healthy coping skills. SIT strives to expand veterans coping skills through progressive muscle relaxation (PMR), breathing control, thought stopping, positive self-talk, assertiveness training, and emphasizes in-vivo relaxation techniques.

Although SIT draws from cognitive and exposure strategies, it does not explicitly require the veteran to confront traumatic events and memories. Thus, it is a "first-line alternative" to trauma-focus interventions and "has been shown to be effective in assisting individuals with reducing trauma-related avoidance, anxiety, and cognitions, and there is good evidence that it is equivalent in efficacy to the trauma-focused

psychotherapies" (VA/DoD, 2010, p. 116). SIT has been used pre-deployment as a way to "expose troops to stressors they are likely to experience during deployment, to help troops perceive these stressors as more familiar, predictable, and controllable" as a way to decrease stress and promote stress resilience (Stanley, Schaldach, Kiyonaga, & Jha, 2011, p. 568). Nonetheless, according to Steenkamp and Litz (2013), "no study has examined SlT in the treatment of combat-related PTSD, nor is this intervention used frequently in VA or DoD" (p. 46).

Eye-movement desensitization and reprocessing. Another approach the VA/DoD (2010) advocates for is EMDR; an eight-phase information processing treatment, which theorizes that systematic saccadic eye movement and other forms of bilateral stimulation encourages the brain to reprocess memories. According to McGuire, Lee, and Drummond (2014), a guiding principle of EMDR rests on the basis that trauma memories are improperly stored as implicit memory, making their retrieval unconscious and unintentional, and experienced as intrusive. Processing and integrating these memories through bilateral hemispheric stimulation assists the movement of memories from the implicit to explicit, alleviating PTSD symptoms.

As opposed to cognitive and exposure therapies, EMDR does not ask veterans to recall or re-experience chronological information from the traumatic event(s), but rather "are encouraged to follow their own course, moving freely backward and forward in time, attending to inner sensations and cognitions, omitting verbal communication about content if they wish" (van der Kolk et al., 2007, p. 2). According to Silver, Rogers, and Russell (2008), EMDR is "designed to address past negative experiences, current triggers of the symptoms developed from those experiences, and any future blocks to effective

functioning" (p. 948). Thus, it is thought that new connections are developed and associated with the event/memory that are less emotionally and physiologically triggering, (Maxfield, 2003; Steenkamp & Litz, 2013). According to the WHO (2013), this form of treatment:

> (a) Does not involve the direct procedural targeting of beliefs or behaviors; (b) does not use daily homework (although the person may be encouraged to test themselves in previously feared situations near the end of the treatment when symptoms have already reduced); and (c) involves treatment that is conducted without detailed descriptions of the event and without direct challenging of beliefs and without extended exposure. (p. 175)

These aspects may be particularly valuable as military members may feel less stigmatized not having to directly disclose their experiences, as "veterans in crisis may not be able to complete in vivo exposure or homework" (WHO, 2013, p. 956).

Although EMDR has gained popularity and empirical evidence for its efficacy, it has been historically controversial. The controversy seemed to reach its peak when the Institute of Medicine (2007) declared that there is insufficient evidence of EMDR as it claimed that exposure therapies were the *only* interventions for PTSD that were sufficiently supported by empirical evidence. However, the Institute of Medicine's findings have been questioned based on inaccurate evaluations of the EMDR studies (Lee & Schubert, 2009). A central argument against EMDR is that, relative to CBT, the underlying mechanisms as to why this treatment indicates clinical efficacy is largely unknown (WHO, 2013). Researchers have speculated that the theory informing the practice of EMDR is questionable, and that the mechanisms of the eye movements may not play a central role in reprocessing memories (Cahill, Carrigan, & Frueh, 1999; Herbert et al., 2000). According to Russell (2008), proponents against EMDR have argued that it is simply a variation of CBT (Salkovskis, 2002) and combines components

of exposure therapy with rhythmic movements of eyes or limbs and deduce that the actual effective component of EMDR is exposure (Cukor et al., 2010) despite the treatment approach being disparate to exposure therapy. Silver et al. (2008) clarify that "it is possible to find similarities to other psychotherapies in some of the EMDR methodology; however, EMDR is not derived from psychoanalysis, cognitive therapy, exposure therapy, or other families of therapy" (p. 948).

Since its inception in 1989 (Shapiro, 1989), EMDR has been widely researched among various civilian populations with PTSD in order to determine its legitimacy and efficacy (e.g., Bisson & Andrew, 2007; Bradley, Greene, Russ, Dutra, & Westen, 2005). Military-based research using EMDR has focused on war stress injuries including PTSD, acute stress disorder, depression, traumatic grief, phantom limb pain, and medically unexplained symptoms (Albright & Thyer, 2010; Carlson, Chemtob, Rusnak, Hedlund, & Muraoka, 1998; Lewis, 2009; Russell, 2007; Russell & Figley, 2013; Russell, Silver et al., 2007; Silver, Brooks, & Obenchain, 1995; Silver et al., 2008). The consensus is that EMDR provides improvements in PTSD symptoms within the military population as it is considered a front-line treatment for PTSD (VA/DoD, 2010) and is one of the top two recommendations by the WHO (2013).

Psychopharmacological medications for war stress injuries.

Psychopharmacological medications have also been used as a primary and/or supplemental approach when treating PTSD (Seal et al., 2008; VA/DoD, 2010). According to van Etten and Taylor (1998), "Drug therapies are based on the assumption that exposure to trauma causes neurochemical aberrations in mechanisms controlling arousal and other aspects of emotional processing, and that medications correct these

aberrations" (p. 127). Research has continued to indicate that PTSD causes psychobiological dysfunctions including alterations in the serotonergic, noradrenergic, opioid, dopaminergic, and hypothalamic-pituitary-adrenal (HPA) axis system (Sutherland & Davidson, 1994; van der Kolk, 2003; Yehuda, 2002). Evidence from RCTs have tested a number of drug therapies to treat PTSD, including antidepressants, atypical antipsychotics, anticonvulsants, alpha-adrenergic blockers, and benzodiazepines (BDZs) (VA/DoD, 2010).

The VA/DoD (2010) recommends selective serotonin reuptake inhibitors (SSRIs), a type of antidepressant, "as first-line agents in the pharmacotherapy of PTSD and supports their value in long-term treatment" (p. 151). SSRIs are widely studied among the civilian population; yet, its results with combat-related PTSD are questionable. Currently, the FDA supports the use of two SSRIs, sertraline and paroxetine, for PTSD treatment (Cukor et al., 2010). However, inconclusive findings in the found literature make it difficult to draw strong conclusions regarding the recommended use of SSRIs. For instance, according to Foa, Franklin, and Moser (2002), less than 50% of PTSD patients benefited from SSRIs. Furthermore, Friedman, Marmar, Baker, Sikes, and Farfel, (2007) found no difference between sertraline and the placebo with Vietnam veterans. Nonetheless, the VA/DoD (2010) guidelines warn to "not extrapolate the findings of Friedman's paper to all veterans, as veterans with chronic PTSD who remain symptomatic after decades of VA treatment comprise a chronic treatment refractory cohort that is not representative of all male combat veterans with PTSD" (p. 152).

Other antidepressant agents such as tricyclic antidepressants (TCAs) and monoamine oxidase inhibitors (MAOIs) are deemed as second-line treatments but are

considered not as effective as monotherapy. The VA/DoD (2010) guidelines also recommend atypical antipsychotics and anticonvulsants as adjunctive treatments to antidepressants. Efficacy studies supporting this use are limited by a small sample size and inconsistent methodological designs but indicate possible benefits in reducing hyperarousal and flashbacks. Lindley, Carlson, and Hill (2007) studied anticonvulsants like topiramate, as an adjunctive treatment with veterans and found negative results. Overall, there is not enough data to support the use of anticonvulsant agents for combat-related PTSD. Benzodiazepines are commonly used "as needed" for symptoms of panic, sleeplessness, irritability, and anxiety but do not assist with other PTSD symptoms such as dissociation and avoidance (Friedman, Davidson, & Stein, 2009). Research has found that "benzodiazepines may actually potentiate the acquisition of fear responses and worsen recovery from trauma" and have a high potential for dependence and tolerance (VA/DoD, 2010, p. 153).

Overall, "there is currently no consensus on the effectiveness of pharmacological treatments between different clinical practice guidelines" for PTSD (WHO, 2013, p. 208). The WHO does not recommend the use of SSRIs and TCAs as first-line interventions for PTSD but may be considered as a potential adjunctive treatment if CBT and EMDR did not prove to be beneficial. Another concern with pharmacological treatments is the tendency that one must continue on a pharmaceutical regime to maintain the effects, which may be seen as only addressing the symptoms instead of the source of the issues (Cukor et al., 2010). In general, psychopharmacological interventions are inconclusive and more research is needed in order to weigh the cost-benefit of psychoactive medication for this population.

Problems with implementing evidence-based psychotherapies. As illustrated above, there are many reasons why military members may need additional support, however, very few actually receive it (Gibbons et al., 2014; Hoge et al., 2014; Zinzow et al., 2012). Although a number of treatment options are available, the actual number of veterans who do not receive care is vast. Earlier studies have revealed that a little more than half of the returning veterans from Iraq and Afghanistan who reported war stress injuries sought treatment (Hoge, Auchterlonie, & Milliken, 2006; Kehle et al., 2010; Tanielian & Jaycox, 2008). More recent studies continue to indicate low treatment involvement. For instance, the VA (2012) reported over 1.4 million veterans have retired from the military since 2002 and 54% of them accessed health care services from the VA. Of the 1.4 million, 404,000 received mental health diagnoses. However, Hoge et al. (2014) reported that of the 2,230 military personnel with PTSD in their sample, 78% of them did not have more than one health care visit.

According to Cukor et al. (2010), "despite the unparalleled success of these interventions, treatment failures persist" (p. 82). Studies have revealed a number of barriers and limitations of EBPs because of compliance issues, premature termination, dropout rates, and resistance to seeking care due to stigma (NCD, 2009; Williamson & Mulhall, 2009). Unfortunately, limited data exists on these individuals. This section describes these of impediments related to accessing and receiving evidence-based treatments including issues with access, stigma, dissemination of proper trainings, limitations of standardized interventions, and misleading research designs and assumptions.

Access. Research has reported that there are "significant barriers to receiving mental health care in the DoD and VA systems" (S. J. Johnson et al., 2007, p. 4), which influence service members' access to treatment. These barriers include:

> Distance from required specialized services; availability of specified types of service including early intervention services; bureaucratic obstacles to accessing care; user friendliness; clinic hours and policies; perceived stigma and concerns with impact on job or reserve unit status; and lack of information about what services are available. (NCD, 2009, p. 53)

Additional identified access barriers include practical obstacles such as transportation, time off from work, and financial resources (Sayer et al., 2009; Wright et al., 2009). Perceptions of service availability and difficulty navigating VA health care system also have been identified as key barriers to accessing care (Vogt, 2011). In addition, shortages of trained mental health clinicians and inadequate screening processes present unique challenges to veterans accessing care (Williamson & Mulhall, 2009). For instance, Cully et al. (2008) reported that 78% of military personnel surveyed were not provided care for symptoms of PTSD, depression, or anxiety within the same year of receiving the diagnosis. Williamson and Mulhall (2009) attributed part of the cause for these barriers on "passive systems" like the DoD and VA which leaves "the burden on the service member or veteran to self-diagnose and seek out care" (p. 11). However, even those who do seek help appear to experience inconsistencies in the quality of care they receive.

The inadequate staffing and training of mental health professionals brings into question the quality of care military members receive. In 2007, the U.S. Department of Defense Task Force on Mental Health admitted that, "current efforts are inadequate to ensure the psychological health of our fighting forces…[and] revealed and exacerbated

pre-existing staffing inadequacies for providing services to military members and their families" (p. 9). The inadequate number of mental health professionals and the unanticipated amount of returning military personnel needing care has exhausted and overwhelmed the military's resources (Pine, 2009).

Fortunately, assistance for mental health issues does not solely come from the military as numerous military personnel depend on non-VA resources (Wagner, Federman, Dai, Harris, & Luna, 2007). Nonetheless, military personnel are challenged by the limited amount of non-military providers who are open to military culture and aware of military personnel' experiences. According to Shaw and Hector (2010), non-military mental health professionals may have limited competence with this population and may be inexperienced with the political, psychological, social, and emotional impacts of military training and combat. Because of this, community-counseling facilities are striving to prepare and educate themselves to be better able to serve the veteran population (Brancato et al., 2008; Ross, Meyer, & McLaughlin, 2008). Additional mental health professionals from outside of the VA system may provide veterans with more avenues of care and decrease some of the stigma and obstacles, like confidentiality and location of treatment, which appears to have historically impeded veterans from seeking help.

Nonetheless, access to training for mental health clinicians has been reported to be limited and, at times, insufficient. For instance, Russell and Friedberg (2009) reported that despite the efforts in training clinicians in VA/DoD's (2010) recommended EBTs (e.g., cognitive therapy, exposure therapy, stress-inoculation training [SIT], eye movement desensitization and reprocessing [EMDR]), 10% of the sampled 133 DoD

mental health professionals had received the proper training in these treatments. This finding, among others, demonstrates that "access to training on EBT-PTSD has institutionally been limited across professional disciplines and branches of military service despite their availability to professionals since 1989" (Russell & Friedberg, 2009, p. 25).

Additional access barriers to quality care exist for ethnically diverse populations. According to the NCD (2009), "Despite high rates of PTSD, African-American, Latino, Asian, and Native American veterans are less likely to use mental health services" due to the lack of culturally competent providers, stigma, and linguistic issues (p. 4). Westermeyer, Canive, Garrard, Padilla, Crosby, and Thuras, (2002) identified various barriers, which prevented Native Americans and Latino veterans from receiving care from the VA. Researchers reported that 79% of Native American and Latino veterans indicated that clinicians from the VA were uncomfortable with working with them because of ethnic differences and 85% specified that the clinicians seemed to have limited knowledge about their cultures.

These studies, among others, document the overwhelming numbers of veterans struggling with mental health issues that do not seek or receive treatment because of multiple impediments to care. "Until these systemic problems are resolved, troops and veterans will continue to struggle with untreated psychological and neurological injuries" (Williamson & Mulhall, 2009, p. 12). However, whether they are seeking or receiving help, many military personnel and veterans fear that their reputation, positions, rank, or careers are in jeopardy (Zinzow et al., 2012), and thus combat the effects of stigma.

Stigma. The stigma associated with receiving treatment for mental health issues has been well documented (Gibbons et al., 2014; Hoge et al., 2014; Zinzow et al., 2012). According to Williamson and Mulhall (2009), "The stigma associated with psychological injuries is the most serious hurdle to getting Iraq and Afghanistan veterans the mental health care they need" (p. 4). Sammons (2005) identified three specific types of stigmas that veterans encounter when deciding whether to engage in treatment: public, self, and structural; themes that continue to be supported in the current body of literature (e.g., Vogt, 2011; Zinzow et al., 2012).

Public stigma concerns the culture's understanding of mental illness "as reflected in the extent to which an individual believes that he or she will be stigmatized by others for having a mental health problem" (Vogt, 2011, p. 135). In the U.S., veterans are portrayed as strong, masculine, heroic, and able to "tough out" difficult emotions (Vogt, 2011). The emphasis placed on military members to have emotional strength may attribute to service personnel's' negative beliefs and level of skepticism towards mental health services. Cultural assumptions expect veterans to be able to recuperate and cope with the aftermath of war. However, when more veterans report psychological distress, this idealized image is challenged. Military personnel, therefore, experience culture's disapproval, a powerful deterrent to service use, when they return home and struggle to reintegrate into civilian life (Vogt, 2011).

Self-stigma, according to Sammons (2005), is the internalization of the culture's disapproval, leading many to feel embarrassed and ashamed of their perceived deficit. Seeking or receiving help is usually perceived as a sign of weakness, preventing many military personnel and their families from obtaining the needed care (Campbell, 2008).

This self-stigma can be seen in Williamson and Mulhall's (2009) study which found around 50% of the Marines and military personnel in Iraq who screened positive for a mental health issue indicated that they were afraid that they would be perceived them as weak, blamed for their problem, and treated differently because they sought treatment for their war stress injury.

Besides the feelings of shame and impotence associated with disclosing a psychological issue, veterans may also fear negative career consequences because of his or her struggle. Commanding officers have access to service members' mental health records, greatly reducing the level of confidentiality and privacy, and may cause members to be deemed "unfit" for duty, impact security clearances, or warrant removal from their unit (Vogt, 2011). This type of stigma, which Sammons (2005) calls structural stigma, is when institutional practices and policies limit veterans' opportunities because of their psychological health. Service members, including active duty as well as discharged personnel, frequently reported that if they seek mental health support, their careers would suffer (NCD, 2009). For instance, others may believe that he or she is no longer able to fulfill their duties or protect other military personnel (Gibbons et al., 2014). This belief is supported by the Mental Health Task Force (2007) which reported that "Concerns that self-identification will impede career advancement...may lead service members to avoid needed care, even at early stages when problems are most remediable" (p. 20). Research assessing the perceptions of military members' support the belief that it is often advantageous for veterans to endure the suffering associated with the illness than to risk the potential repercussion from others, including military personnel, civilians, and culture at large (Gibbons et al., 2014; Hoge et al., 2014; Zinzow et al., 2012). When

considering these adverse perceptions and barriers to getting help, one can understand why a solider may question whether to seek treatment for war stress injuries.

Dissemination of training. A frequently cited impediment of EBPs is the lack of proper training (Shafran et al., 2009), insufficient education during graduate school (Gunter & Whittal, 2010), lack of time and funds (Gunter & Whittal, 2010; Shafran et al., 2009), and therapists' personal beliefs, opinions, and motivation for using an EBP approach (Cook, Schnurr, & Foa, 2004). Pertaining to training, Russell and Friedberg (2009) found that of 133 DoD mental health providers surveyed, 90% reported not receiving formal supervision and/or training on any of the top four tier EBT-PTSD. van Minnen, Hendriks, and Olff (2010) also found that among 255 trauma experts, there was a lack of training in exposure therapy, which was underutilized, and medication was more likely to be recommended for PTSD with comorbid depression. Similarly, C. B. Becker, Zayfert, and Anderson (2004) found that only 17% of 217 psychologists employed exposure therapy for PTSD treatment, and even with training, 38 to 46% reported not using it. Hesitancy reported by these trained clinicians included the likelihood of the patient to decompensate and disinclination to use a manualized treatment. With regards to PE, Cahill, Foa, Hembree, Marshall, and Nacash (2006) reported that a large cohort of psychologists also resisted to using manualized treatments, were uncomfortable using cognitive restructuring and exposure techniques, and were worried they may be causing the patient harm. Steenkamp and Litz (2013) articulated these concerns of services providers as follows:

> Clinicians' decision making about which treatments to use with PTSD patients, including perceptions of patient appropriateness for PE and CPT, has not been evaluated. This is a crucial point when considering that PE or CPT were developed and tested on female sexual assault survivors and imported into the

> DoD and VA on the untested assumption that successes with civilians would generalize to combat trauma. Understanding VA and DoD clinicians' perceptions of the degree of fit of these interventions for their patients, and their assessments of contraindications of these treatments, would shed light on why trained clinicians may not be employing these therapies. (p. 51)

Despite these concerns, the DoD and VA have deemed the manualized treatments of PE and CPT as the most advantageous treatment modalities based on the results of quantitative studies (e.g., Rauch et al., 2009; Thorp, Stein, Jeste, Patterson, & Wetherell, 2012; Wolf, Strorn, Kehle, & Eftekhari, 2012). In fact, in 2008, the VA required that PT and CPT be available to all veterans with war stress injuries (VA, 2008) and in 2010, all VA medical centers indicated that they offered either CPT and/or PE (Ruzek, Karlin, & Zeiss, 2012). However, given the concerns related to exposure therapies, clinicians may feel more comfortable implementing cognitive-based therapies. However, according to VA/DoD (2010), it is "virtually impossible to conduct cognitive trauma-focused therapy without also involving behavioral or exposure-based components, as it is similarly virtually impossible to conduct behavioral or exposure-based therapy without involving cognitive therapy components" (p. 120).

Thus, EBPs for combat-related PTSD have not been implemented correctly, which has been conceptualized as a dissemination issue in which clinicians are either improperly trained, trained but resistant, or hesitant to use manualized, and confrontational, treatments. However, there also seems to be problems inherent to the treatments recommended with regard to the success of their implementation.

Limitations of standardized interventions. Although less reported on, significant barriers to the implementation of EBPs exists within the treatment approaches such as inadequate screening, re-traumatization, high attrition rates, and relapses of fear

symptoms (van der Kolk et al., 2014). Considering the emphasis on the problems with dissemination, training availability, clinician perceptions, and lack of motivation to change treatment approaches, internal factors that present barriers to providing veterans with adequate care appear largely ignored. This prevents researchers, clinicians, and policy-makers from critically assessing the value of interventions being touted as the "gold-standard" and provided to vulnerable populations.

Screening for treatment suitability and providing treatment expectations help prepare veterans before they engage in treatment that may require them to directly confront, focus on, and verbalize their trauma. It is recommended for clinicians to screen for domestic violence, suicide ideation, substance dependence, and psychosis as well as those with high levels of shame, guilt, and anger because such presentations are not recommended to engage in exposure-based therapies (Foa, Riggs, Massie, & Yarczower, 1995; VA/DoD, 2010). Yet, given the high levels of comorbidity regarding these presentations, exposure therapy may not be applicable to this population, and should be used with great caution (VA/DoD, 2010).

With regard to attrition, exposure and cognitive-based treatments ask veterans to confront their traumatic experiences, possibly causing increased distress, and possible re-traumatization, which may deter them from seeking or completing treatment. As van der Kolk (2006) conceptualized, trauma exposure causes dysregulation of the autonomic nervous system, creating significant challenges for individuals to attend to higher order thought when their limbic system has become so aroused by the trigger they are discussing. This may explain why survivors of trauma are unresponsive to treatment methods that are predominantly cognitive in nature. According to the WHO (2013)

guidelines, more participants left treatment studies and/or dropped out of treatment when using CBT with a trauma focus and stress management. Dropout rates were not associated with EMDR treatments. This may be because therapies using components of exposure and cognitive approaches involve "being extensively exposed to frightening, or horrific, memories that one is trying to avoid, and as such can be counter-intuitive to the person" (WHO, 2013, p. 190). Exposing someone to their fears or prior traumas without the client first learning the accompanying coping techniques such as relaxation or imagery exercises can result in a person being re-traumatized by the event. According to the NCD (2009), "Exposure therapy may be very intimidating for clients to contemplate and can be time consuming and emotionally wrenching for them to complete" and "the client may begin to have more symptoms before the symptoms begin to subside" (p. 28). Thus, early termination within these types of treatment modalities is common, leaving some feeling more helpless than before.

For military personnel who do complete an exposure-based treatment, the effects of the treatment may not be long lasting. As mentioned above, PTSD is considered a disorder of extinction and exposure therapy teaches veterans how to extinguish their learned response to events and memories reminiscent of the actual trauma (Cukor et al., 2010). Nonetheless, there is growing evidence that the extinction of a conditioned response does not entirely erase what was learned (Domjan, 2010). Renewal, and other forms of relapse of fear symptoms, has been of particular interest for behavioral researchers because it implies that clinical improvements that are accomplished in exposure therapy may not persevere outside the therapy context. Therefore, even if a therapeutic intervention is successful in the elimination of a pathological fear or phobia in

a therapist's office, the conditioned fear may return when the client encounters the feared conditioned stimulus in different contexts. This is unfortunate news for various forms of exposure therapy whose goals are to eliminate pathological fear, phobias, and bad habits.

Misleading research designs and assumptions. Problems with the success of EBPs are also a result of the research assumptions and design that support its conclusions. Trauma based research has privileged RCTs of exposure and cognitive-based interventions. In terms of design, RCTs "methodological framework rests on assumptions that are best suited to biological, behavioral, and cognitive treatments" (Gilroy, 2006, p. 84). The knowledge that is obtained from RCTs is imperative and offers much to the public and military sector. However, these types of designs can only portray *if* an intervention has efficacy under strict conditions, not how or why the intervention is useful, helpful, or valuable. Furthermore, because of this privileged system, the current literature does not represent the full spectrum of interventions available. Lacking funding and resources from government agencies, other interventions are unable to establish an evidenced-based foundation. Thus, it is important to recognize how the medical and mental health field privileges the "evidence" from RCTs and research outcomes using EBPs, particularly exposure and cognitive-based models, while simultaneously overlooking its limitations.

Many conclusions have supported exposure and cognitive-based interventions even though the results do not necessarily support such claims. As described by Cukor et al. (2010), "There [is] no evidence of the superiority of PE over other treatments" yet continued funding and emphasis is placed with these treatment paradigms (p. 83). Schnurr et al. (2007) conducted a multi-site study (n = 284) comparing person-centered

therapy to PE in active duty female veterans. Although the study reported a decrease in PTSD symptoms, only 6% reported war exposure as their primary trauma source as 68% reported sexual assault as their primary trauma source. Therefore, the study does not necessarily support PE as a treatment for combat exposure because it more accurately represents the effects of PE with sexual trauma. Furthermore, 59% of the participants still met criteria for PTSD post-treatment.

In another RCT of PE, Nacasch et al. (2010) compared psychodynamic therapy to PE in 30 Israeli participants who reported trauma associated with combat or terrorism exposure. Psychodynamic therapy did not include trauma processing but did focus on childhood issues, stressors, and object-relations themes. Results indicated that PE was more efficacious than non-trauma focused psychodynamic therapy and significantly reduced PTSD symptoms from pre-treatment to 12-month follow up. It is unclear, however, if psychodynamic treatment would have demonstrated beneficial results if trauma processing was involved in the therapy.

Monson et al.'s (2006) RCT examined CPT to waitlist controls with mostly male, Vietnam veterans (n = 60) with combat-related PTSD. After treatment, 40% of participants treated with CPT and 3% of the waitlisted group no longer met diagnostic criteria for PTSD. However, 60% retained their diagnosis, and after one-month, 70% were diagnosable for PTSD. This trend was also found in an uncontrolled effectiveness study compared CPT outcomes for 101 OlF/OEF and Vietnam veterans (Chard, Schumm, Owens, & Cottingham, 2010). After treatment, 59% of OlF/OEF and 40% of Vietnam veterans no longer met diagnostic criteria for PTSD. Although these results are encouraging, 60% of the participants still met criteria PTSD. Thus, results from clinical

trials of exposure and cognitive-based treatments with veterans have been promising, yet misleading. As Mahoney (1977), described "Although cognitive-behavioral approaches have now earned substantial recognition, perhaps the greatest problem facing cognitive therapy researchers is the tendency of confirmatory bias—i.e., selective reporting, emphasis, and publication of studies which 'support' cognitive hypotheses" (p. 5).

Another problem within research is that the results can be misleading. One example of this was demonstrated in Beidel, Frueh, Uhde, Wong, & Mentroski's (2011) study, which examined social behavior such as poor communication skills and anger with 35 Vietnam veterans using a modified version of the standard PE practice. One group received Trauma Management Therapy (TMT) while another group received PE and group therapy. Both groups reported improved social/emotional functioning and significant reductions in symptoms of PTSD. Nonetheless, "minor symptom improvement can lead to a loss of a PTSD diagnosis" causing veterans to "no longer meet diagnostic criteria" which "does not imply that the individual is symptom-free or functioning better" (Steenkamp & Litz, 2013, p. 49). Thus, even though the reported results indicate a decrease in the symptoms of PTSD, it does not necessarily mean that participants were functioning at capacity or able to positively adapt to changing relational or environmental stimuli.

Lastly, Strachan, Gros, Ruggiero, Lejuez, and Acierno (2012) compared eight sessions of in-person and home-based telehealth, which combined exposure therapy and behavioral activation (BA). Results indicated that the sample of 40 OIF/OEF veterans diagnosed with PTSD experienced symptom reduction for pre- to post-treatment. Nonetheless, these studies, among others (e.g., Monson et al., 2006; Schnurr et al., 2007)

still had mean scores that were above the diagnostic threshold for PTSD post-treatment. Thus, participants may continue to struggle with PTSD post-treatment even though they do not meet the full diagnostic threshold, making the treatment outcomes only seem more effective. Steenkamp and Litz (2013) recommended future studies:

> To maximize their practical value, in addition to effect sizes, outcome studies should report more useful metrics of treatment success, such as high end-state functioning (including quality of life and functional indicators), remission rates, continued need for PTSD therapy at post-treatment, and the ratio of patients who are considered successful responders to those who are not. (p. 51)

According to Steenkamp and Litz (2013), it is also imperative to recognize that the current literature does not fully represent all military members with war stress injuries. Rather, scientific literature describes only the small percentage of those who are able, willing, and qualified to participate in clinical research. For example, military members presenting with comorbidity are often deemed unsuitable for the given research studies. This is in part due to the high level of homogeneity needed within RCTs in order to control for confounding variables (e.g., age, gender, ethnicity, military experience, war stress injury, symptom severity, treatment setting). As a result of the highly controlled conditions:

> There are difficulties with generalizing from the particularities of rigorously controlled trial conditions to the routines of everyday care in settings in differing geographical locations with local services and delivery structures; they need long-term follow up; they require large-scale funding; and the intervention or treatment being investigated must be standardized, all of which limits their application to outside a controlled research setting in diverse socio-cultural contexts. (Gilroy, 2006, p. 84)

Moreover, the idiographic complexity of participants is ignored as they are grouped together according to their diagnosis, assuming that diagnosis determines the treatment (Gilroy, 2006, p. 84). For example, much of the current EBPs for combat-

related PTSD are based on studies with Vietnam-veterans, several years after their discharge and may not accurately reflect the current cohort of deployed and returning military personnel (Russell, 2008).

The exercise of excluding military members presenting with comorbidity from these studies constitute significant barriers to providing efficacious treatments to this population. Minimal research focused on effective treatment strategies has limited available data on implementing treatment for the majority of individuals with PTSD, as they rarely have a solitary diagnosis and more often have complex clinical presentations. For instance, little is known about the efficacy of PTSD treatment with veterans also suffering from TBI (McAllister, 2009). Thus, the results of published research that reflects a limited percentage of military members, does not provide clinicians with the ability to address comorbid presentations. Therefore, "future research must address whether treatments are effective in their current form, or must be modified to some extent or changed completely to be effective for individuals with mild TBI with or without lasting cognitive deficits" (Cukor et al., 2010, p. 87).

Furthermore, qualitative studies on these EBPs need to be conducted regarding the consumers (veterans and families) as well as clinicians experience of providing and receiving these types of treatments. Thus far, the body of knowledge regarding these EBPs approaches conveys if these treatments work under controlled conditions, not why or how. Gaining the perspectives of veterans as well as the providers would offer greater awareness as to why these failures continue.

Summary. In summary, the DoD/VA (2010) recommends for four therapeutic approaches: exposure therapy, cognitive therapy, SIT, and EMDR. The most frequently

used strategies include CBT and PE. In exposure therapy, veterans are asked to confront traumatic memories related to combat and war. Cognitive therapies, such as CBT and SIT, help veterans develop coping skills, anxiety management strategies, and newer and healthier ways of thinking. Although the mechanisms of action are unclear, EMDR uses bilateral stimuli to help veterans reprocess and integrate traumatic events and memories. Bisson and Andrew (2007) reviewed 33 studies involving psychotherapeutic interventions of PTSD and concluded that CBT with a trauma focus, EMDR, stress management were useful in the treatment of PTSD. In addition, "there was some evidence that individual CBT with a trauma focus and EMDR are superior to stress management in the treatment of PTSD [and] . . . are more effective than other therapies" (p. 2). Psychopharmacological interventions are inconclusive and more research is needed in order to understand their level of efficacy for this population.

It is imperative to assess the treatment methods that have provided relief to veterans and active military with war stress injuries. When the dissemination, adoption, and outcomes of EBPs for combat-related PTSD have failed, fault has been attributed to clinician's training, skill, and motivation. However, overlooked limitations exist within the subscribed treatments as well as the research that has been being conducted. In light of these practices, the predominance of compliance issues, premature termination, dropout rates, and resistance to treatment is more clearly understood. Overall, Cukor et al. (2010) summarized, "At best, then, one-third of patients who complete these evidence-based therapies retain a diagnosis of PTSD at completion of treatment, offering compelling reason to continue to pursue alternative treatments or augmentations to current interventions" (p. 82).

There is a "disconnect between efficacy research and actual practice…To date, military-related PTSD treatment policy has mostly been driven by efficacy research, such as RCTs, traditionally considered the gold standard of outcome research" (Steenkamp & Litz, 2013, p. 51). However, RCTs do not represent "typical treatments or typical veterans" in the VA (p. 51). Mental health professionals, among others, need to continue to assess and evaluate other potential interventions including alternative or supplemental interventions, which have demonstrated promising results however; their efficacy has not been fully established. Therefore, it is essential to assess both traditional (e.g., evidence-based practices for individual psychotherapy, group therapy, and pharmacotherapy) and emerging treatments (e.g., creative arts therapies, mind-body therapies, and animal assisted interventions such as THR).

Complementary and Alternative Medicine

According to Strauss and Lang (2012), there are a number of complementary and alternative interventions for war stress injuries. Complementary and alternative medicines (CAM) are interventions that are considered non-traditional practices within the U.S. When interventions are "complementary," they are *combined with* a traditional method while "alternative" approaches are used *instead of* the traditional intervention. This section reviews some of these emerging and non-conventional techniques used with treating war stress injuries including a range of creative arts therapies and mind-body interventions.

Creative arts therapies. Creative and expressive arts therapies including art, music, drama, and dance, have demonstrated efficacy in decreasing symptoms of PTSD, depression, and anxiety (e.g., Collie, Backos, Malchiodi, & Spiegel, 2006; Deaver, 2002;

Stadler, 2010). This research is informed by descriptive case or pilot studies (e.g., Lyshak-Stelzer, Singer, St. John, & Chemtob, 2007; Sloan & Marx, 2006) as well as controlled clinical trials (e.g., Bugg, Turpin, Mason, & Scholes, 2009; Monti et al., 2006). As many of these studies are limited by a small sample size, lack of follow up measures, and controlled conditions, their quantitative findings are inconclusive. Despite this, these studies provide participants' perceptions of the benefit experienced from participating in these types of approaches.

The philosophy underlying creative arts techniques is that thoughts and feelings related to the traumatic experience can be expressed and processed through nonverbal forms of communication (Stadler, 2010). Creative arts therapies allow:

> Individuals with PTSD to experience and/or express their thoughts and feelings without necessarily having to verbalize the trauma, share this verbalizing with others, or directly confront the trauma, if they are not ready. Alternative therapies, in general, also focus on creating an environment in which the patient feels safe, and then providing an expressive medium that does not threaten that feeling of safety. (Smyth & Nobel, 2012, p. 1)

Research suggests that the reliance on nonverbal forms of communication provides creative interventions with an advantage over traditional talk therapies, as they allow for the recollection of the traumatic memory without re-telling or re-experiencing the intense emotions associated with the event (Gantt & Tinnin, 2009). Current neuroscience indicates that traumatic memories are stored in the right hemisphere of the brain, resulting in a limited capacity to articulate traumatic memories (Malchiodi, 2008). According to Gantt and Tinnin (2009), research findings and clinical observations suggest, "posttraumatic disorders involve nonverbal mental activity that escapes or overrides verbal thinking" (p. 148). Thus, creative arts therapies provide a non-verbal means for communication providing the individual with the experience of greater safety

and emotional regulation. What follows is a brief review of the most widely used creative arts therapies with veterans and active duty military.

Art therapy. Art therapy provides opportunities for non-verbal expressions through drawing, sculpting, and painting to express an individual's unique recovery processes (Gantt & Tinnin, 2009; Stadler, 2010) and provides an outlet to process memories and emotions that are difficult to convey through words alone (Collie et al., 2006; M. Graham & Sontag, 2001; Nanda, Gaydos, Hathorn, & Watkins, 2010; Niles et al., 2011). This may be especially advantageous in the early stages of veterans' recovery from the emotional traumas of simulated or actual combat (Henderson, Rosen, & Mascaro, 2007). The process and product of art making encompass the primary interventions of this approach. Time spent making art provides an opportunity to quietly reflect, brainstorm, and relax. As art is made, emotional content surfaces, is made tangible and visible to the veteran, who is then able to garner insight. The final art piece constitutes a starting place; the military personnel can use to discuss what they made, why, and what feelings they noticed in the process. In addition, Launde, Tarpley, Francis, and Boucher (2010) utilized art therapy with combat veterans and wrote, "Artwork can be viewed from a safe psychological distance offering opportunities to rework images and in the process gaining a sense of reassuring mastery" (p. 42). Launde et al. (2010) also reported that military members might prefer therapeutic approaches that rely less on verbalizing their trauma and use hands-on interventions.

Although not specific to the military population, results from multiple RCTs have demonstrated that after drawing and making collage, the treatment group experienced greater reductions of PTSD symptom severity then compared to the control group

(D. Kaiser et al., 2005; Lyshak-Stelzer et al., 2007). Understanding the effects and role of art therapy within these trials is also difficult to ascertain as most combine art therapy with cognitive therapies (Smyth & Nobel, 2012.). The benefits of these multi-modal treatments suggest that art therapy is helpful as an adjunct to verbal therapies; however, more research is needed in regards to what contexts art therapy is most useful.

Music therapy. Another creative arts therapy is music therapy which incorporates different ways of engaging with music such as sharing, creating, and listening to music to promote emotional expression in safe and supportive settings (Bensimon, Amir, & Wolf, 2008). Since sensory processes mediate music and traumatic events, it is hypothesized that music may help people process the trauma without overwhelming linguistic demands (D. R. Johnson, 1987). Research has demonstrated that certain brain regions related to emotional behavior and sensory-emotional processing are stimulated by music (Boso, Politi, Barale, & Enzo, 2006). There is a body of evidence that indicates that areas of brain believed to be linked to posttraumatic expressions are also impacted by music (Bremner, Staib, Kaloupek, Southwick, Soufer, & Charney, 1999; Stevenson & Gratton, 2003).

Most of the research conducted on music therapy has been with children, however, three studies utilizing group music therapy with PTSD patients were found in the literature (Bensimon et al., 2008; Bensimon, Amir, & Wolf, 2012; Carr et al., 2012). These studies suggested that music provided a starting place for dialogue, helped facilitate trusting and safe interpersonal connections, and fostered feelings of belonging, intimacy, openness, and closeness. Researchers also reported that music provided an outlet to express challenging emotions (e.g., anger and rage) and was an unintimidating

approach to process memories. Carr et al. (2012) found group music therapy for PTSD patients who were non-responsive to CBT interventions. Although not specific to combat-related PTSD, the study supports the notion that music therapy may be beneficial in reducing PTSD symptoms.

Expressive writing. Expressive writing (EW) is a brief intervention strategy usually lasting between three to five sessions of 15 to 20 minutes (Smyth & Nobel, 2012; Smyth, Pennebaker, & Arigo, 2012). During this intervention, people journal about their thoughts and feelings related to the traumatic event. The effectiveness of EW is based on the person's willingness to write personal and emotional content and experience the externalizing process of writing (Smyth & Nobel, 2012.). Clinical trials assessing the usefulness of EW on PTSD have been performed and many have demonstrated beneficial results such as decreasing distressful thoughts and feelings (Bugg et al., 2009; Stanton et al., 2002). Studies have also demonstrated that EW provides a form of exposure in which the writer habituates to distressing feelings aroused by journaling about their experience (Sloan & Marx, 2006). Comparable to exposure therapies, EW may increase the risk of anxiety and immediate discomfort, which usually diminishes across sessions (Smyth & Nobel, 2012). Similar to the rational for the other creative arts therapies mentioned above, EW may be particularly suitable for people who are uncomfortable verbally expressing their experiences and therefore have a nonverbal outlet to express their thoughts and feelings. However, EW may also be beneficial for those who *are* comfortable verbally expressing themselves but are worried about potential negative reactions from family, friends, and/or therapist. Overall, clinical trials and qualitative

studies suggest that EW brings about meaningful and positive experiences for the writer; however, no studies were found which addressed the veteran population.

Mind-body therapies. In addition to creative arts therapies, mind-body interventions have been gaining clinical and research attention. Recently, there has been a boom in mindfulness bases research, with mind-body interventions often being investigated under this heading (Elwy, Johnston, Bormann, Hull, & Taylor, 2014; Gard, Noggle, Park, Vago, & Wilson, 2014; van der Kolk et al., 2014; Wahbeh & Oken, 2013). These interventions hold significant potential as adjunctive or alternative treatment options with the veteran population. What follows is a description of some key mind-body interventions being researched and employed within trauma-based psychology.

Meditation. Research has suggested that different meditation strategies may yield different outcomes (Lang et al., 2012). Lang et al. investigated the theoretical basis of different types of meditation strategies used for PTSD including mindfulness, mantra, and compassion meditations. The literature on the impact of mindfulness on cognitive alterations suggests that people become less responsive to ruminative or intrusive thoughts by practicing and taking on a nonjudgmental stance. Conversely, mantra meditation is usually associated with reducing physiological arousal. Thus, this practice may be well suited for those with PTSD as a coping strategy when traumatic memories are purposefully (like during exposure therapy) or accidently triggered. Compassion meditation is also associated with a different mechanism of change. During these practices, people are asked to focus on feelings of kindness and care towards themselves and others. This has been associated with improvements of social interaction, connectedness, and positive emotions. Research suggests that the lack of these feelings

and experiences are a hallmark of PTSD, therefore, compassion meditation may be a suitable and meaningful intervention. Unfortunately there is insufficient research on the application to PTSD populations to explain the relationship between theory and practice and the subtle and often subjective signs that a practitioner is "on track" or practicing well.

Mindfulness based relaxation techniques. Several contemporary studies using mindfulness based relaxation techniques for the treatment of war stress injuries have been published. These studies investigated the use of healing touch, guided imagery, and mindfulness-based stress reduction (MBSR). Jain et al. (2012) conducted a RCT with 123 military personal with significant PTSD symptoms using healing touch (gentle touching believed to decrease anxiety and pain and promote healing) accompanied by guided imagery. Results demonstrated significant improvements in PTSD symptoms compared to the control group. Kearney, McDermott, Malte, Martinez, and Simpson (2012) used MBSR with veterans diagnosed with PTSD in addition to their usual care. MBSR was conducted in a group format and integrated meditation and yoga into the mindfulness practice. Although this was an uncontrolled study, the authors found a medium effect size for improvements of PTSD, depression, and overall functioning for those who participated in the MBSR group. More recently, D. C. Johnson et al. (2014) conducted a study focused on a mindfulness-based resiliency training to be used before deployment. The Mindfulness-Based Mind Fitness Training combined mindfulness practices with psycho-educational material on autonomic nervous system regulation. In theory, stress inoculation trainings are used to help military personnel prepare for combat-related activities (e.g., real-time situations of counterinsurgency operations).

The inoculation trainings, however, did not include how to recover and regulate the nervous system once the exposure is over. The intended purpose of the Mindfulness-Based Mind Fitness Training was to teach military personnel how to monitor their own bodies and return to their autonomic baseline. Previous studies found preliminary results of the protective effects of mindfulness training and found that it helped preserve working memory abilities (Jha, Stanley, Kiyonaga, Wong, & Gelfand, 2010) and decreased levels of stress when compared to the personnel who did not engage in the training (Stanley et al., 2011).

Trauma Sensitive Yoga (TSY). Yoga is another mind-body intervention used for PTSD and is used widely within VA facilities (Libby, Reddy, Pilver, & Desai, 2012). Yoga integrates mindfulness meditation, postures (asanas), and breathing exercises (pranayama) and has demonstrated beneficial effects on the autonomic nervous system and neurobiological functioning (Moore, Brown, Money, & Bates, 2011; van der Kolk, 2006). Trauma Sensitive Yoga (TSY) differs in that its main focus is to guide a structured and consistent practice that allows individuals to feel safe and reconnected to their bodies through use of invitational and non-directive language, removal of physical assists, and limited explanation of underlying philosophies (Spinazzola, Rhodes, Emerson, Earle, & Monroe, 2011). Through gentle movements and breath, this practices offers trauma survivors a way to relieve PTSD symptoms and experience their bodies as a resource instead of a threat (Emerson, Sharma, Chaudhry, & Turner, 2009). van der Kolk et al. (2014) completed a study in which symptoms of PTSD were significantly reduced after 10 weeks of yoga practice. Researchers concluded, "Yoga may improve the functioning of traumatized individuals by helping them to tolerate physical and sensory

experiences associated with fear and helplessness and to increase emotional awareness and affect tolerance" (van der Kolk et al., 2014, p. 1). Further investigation is needed regarding the therapeutic promise of yoga practice to help traumatized individuals to recognize physical, emotional, and psychological arousal, respond and not react to these experience, and increase their capacity for distress tolerance and affect regulation (thus making higher order thought connected with frontal lobe function online by reducing the limbic system arousal).

Acupuncture. Another mind-body intervention used for PTSD is acupuncture. Acupuncture is a 5000-year-old practice that is a part of Traditional Chinese Medicine (TCM). The goal of acupuncture is to restore equilibrium to the whole person. Acupuncturists place needles lightly under the skin, to stimulate "meridians" or pathways that connect and create harmony between the organ systems. Meridians are understood as the communication system between the interior and exterior of the body, and practitioners of TCM have identified 2000 points where the meridians can be activated over the last 5000 years (Kaptchuk, 2010). Strauss, Coeytaux, McDuffie, Nagi, and Williams (2011) identified one methodologically rigorous study in which 60-minute acupuncture sessions were compared to group CBT in a sample of mostly male, non-veterans (Hollifield, Sinclair-Lian, Warner, & Hammerschlag, 2007). Results suggested that acupuncture was comparable to the effects of CBT and were better than the waitlist control. Moreover, improvements from acupuncture were maintained at a two-year follow-up. Nonetheless, generalizations cannot be made based on one RCT. The study also brought to attention various difficulties inherent in the study including not controlling for different applications of the needles. In future studies, Strauss and Lang

(2012) recommend that needles be placed in "sham sites" in order to understand if the outcomes were influenced by various expectations about the treatment conditions.

Contemporary studies have supported the use of acupuncture for tension headaches (Linde et al., 2009a) and migraine prophylaxis (Linde et al., 2009b). Vickers et al.'s (2013) study provided a systematic meta-analysis of acupuncture and its impact on chronic pain. The current literature empirically supports the continued use of acupuncture for this population.

Problems implementing CAMs. An exhaustive review of the CAM literature is beyond the scope of this paper. What follows is a critique of regarding the implementation of and research on CAMs. Evidence for the efficacy of creative arts therapies mostly come from case studies and, although they report positive outcomes, without a control group it is difficult to conclude how they are helpful or if the treatment effects are due to other factors (Smyth & Nobel, 2012). Although some beneficial results of creative arts therapies with PTSD have been reported (e.g., enhancing dialogue, decreasing behavioral issues), more information that assesses changes in PTSD symptomology is needed. For instance, long-term follow-up data would provide information regarding the degree to which creative arts therapies re helpful on its own or if they are more advantageous when paired with another type of therapy.

Similarly, the current empirical research regarding mind-body interventions are limited by a number of factors including the sample size, absence of control group, lack of follow-up measures, and exclusively male veteran participants (Bormann, Thorp, Wetherell, & Golshan, 2008; Bormann, Thorp, Wetherell, Golshan, & Lang, 2012; Brooks & Scarano, 1985). In 2010, a systematic evaluation of CAM for PTSD was

requested by the VA to determine its usefulness with returning military personnel (Strauss et al., 2011). Seven peer-reviewed RCTs were identified, each limited by a number of factors: design flaws, difficulty to replicate, inadequate description of methods, and low statistical power. All studies highlighted the scarcity of empirical evidence for mind-body interventions for PTSD and were inconclusive about the efficacy of these interventions, under what circumstances they should be used, or with whom. With these limitations in mind, firm conclusions of the efficacy of mind-body interventions are difficult to determine as improvements could be due to a multitude of design flaws and nonspecific factors. Furthermore, the mechanisms responsible for creating positive change are poorly understood (Strauss & Lang, 2012).

In sum, while results from CAM studies suggest that creative arts therapies and mind-body interventions play an important role in helping veterans cope with distressing symptoms related to PTSD, and provide promising alternatives to conventional treatments, the results are not firmly conclusive (Strauss & Lang, 2012). Most studies were relatively small and did not indicate statistically significant improvements. Additionally, the interpretation of the studies' results are limited by significant flaws in the methodological approach, such as questionable randomization, disclosure around the handling of missing data, insufficient statistical power, and purposeful group assignment (Strauss & Lang, 2012).

Animal-Assisted Interactions

In addition to creative arts therapist and mind-body interventions, a relatively new CAM intervention involves bringing animals into the therapeutic process. According to Friedmann (2009), “The healing power of companion animals is increasingly accepted as

one of many forms of complementary therapies used to improve quality and even the quantity of life" (p. 9). For simplicity, this paper will use the term animal-assisted interactions (AAI) to refer to the therapeutic use of animals within a clinical or educational setting. In general, AAI is the inclusion of animals within the therapy context to act as therapeutic agents (Chandler, Portrie-Bethke, Minton, Fernando, & O'Callaghan, 2010). The animal usually belongs to the counselor and can be incorporated into individual and group settings. Many different animals have been utilized for therapy including dogs, cats, rabbits, birds, and horses. Most commonly, dogs are chosen as therapy animals because of their trainability, temperament, and fewer people have sensitivity issues (e.g., allergies; Sockalingam et al., 2008). Depending on various factors (e.g., comfort level of client, purpose of therapy), contact with the animal can be unstructured or structured (Walsh, 2009).

This section of the literature review addresses the historical perspectives of the human-animal bond, the differences in the current use of terminology, and the body of research that addresses the effects of the human-animal bond. The aforementioned section focuses on the research conducted within the civilian and military populations (e.g., pediatric, geriatric, psychiatric, and trauma survivors).

Historical perspectives of the human-animal bond. As early as the 9th century, animals were documented as part of the "therapie naturelle" in Gheel, Belgium (Bustad & Hines, 1984, p. 7). However, it was not until the early 1700s, that animals were acknowledged for their therapeutic potential. As part of a restructuring of the inhumane conditions of asylums, the York Retreat in England introduced animals specifically for the purposes of mental health benefits. With the financial support of William Tuke, a

wealthy Quaker merchant, the asylum allowed animals including seagulls, rabbits, and hawks to roam freely in the courtyard. It was believed that animals provided socializing and/or therapeutic functions and that the interactions between animals and patients encouraged positive feelings, socialization, and overall health. As other institutional care facilities received knowledge of this intervention, AAI gained popularity within the mental health profession (Urichuk & Anderson, 2003).

When specifically addressing the historical use of animals within the military sector, Chumley (2012), asserted, "Ever since mankind went to war, animals have played significant roles. Such roles have been either in official capacities such as cavalry horses, sentry dogs, carrier pigeons, and unit mascots, or unofficially as a soldier's battle companion" (p. 18). In the 1800s, Florence Nightingale advocated for the use of AAI as a way to increase the psychological, emotional, and physical well being of patients, many of whom who were military personnel (Williams & Jenkins, 2008). She indicated that a small pet "is often an excellent companion for the sick, for long chronic cases especially" (cited in Fine, 2006, p. 13). In 1919, the U.S. military also endorsed the therapeutic benefits of animals with injured military personnel at St. Elizabeth's Hospital in Washington, DC (Beck et al., 2012). However, according to Bustad and Hines (1984), it was not until the 1940s when the therapeutic use of animals in the U.S. was first officially documented at an Army Air Corps in Pawling, New York. The convalescent hospital treated combat military personnel who were recovering from "operational fatigue," similar to symptoms of PTSD. During this time, farm animals were incorporated and offered purposeful interactions with traumatized military personnel during their convalescence.

These early uses of AAI, however, decreased in popularity as psychotropic medications were introduced. Dialogue of the potential benefit animals provided as therapeutic adjuncts slowed until Boris Levinson, a psychologist and Nightingale's contemporary, reported his accidental discovery of a "break through" with a young child when he interacted with Levinson's dog (Chandler et al., 2010; Fine, 2006). Levinson continued to have his dog present in his practice with children and found that his dog could facilitate rapport building. He reported that his discovery was accidental and unintended and was inspired by the therapeutic potential animals could provide. Levinson is often cited as one of the founders of animal-assisted therapies, mostly due to his publication of several books and articles, which helped build the legitimacy of animal therapy within the mental health profession. According to Urichuk and Anderson (2003) Levinson's publication of *Pet-Oriented Child Psychotherapy* in 1969 and *Pets and Human Development* in 1972 were "two of the most significant events in the history of modern pet therapy" (p. 21).

As interest in the healing capacities of the human-animal bond grew, the Delta Society (1996) among other domestic and international organizations began to establish. These organizations developed standards and guidelines to broaden recognition and acceptance of therapy animal interventions in the healthcare field (Chumley, 2012). Friedmann assisted with this effort by conducting some of the most frequently cited studies regarding the human-animal interactions. Firstly, Friedmann, Katcher, Lynch, and Thomas (1980) completed a study, which investigated the survival rate of 92 heart attack survivors. Researchers found that participants who owned pets had higher survival rates one-year post heart attack compared to those who did not own pets. That same year,

Friedmann (1995) found that petting a dog was associated with meditative responses in people, lowered their level of arousal, and increased relaxation. Three years later, Friedmann, Katcher, Lynch, Thomas, and Messent (1983) found that dogs significantly lowered blood pressure for children during both resting and moderately stressful settings.

Following the research foundation of Friedmann and her colleagues, in 1985, the U.S. Army Veterinary Corps and the DoD Executive Agent for Veterinary Services began to investigate how the human-animal relationships could benefit the military community (Chumley, 2012). From 1995 to 2004, Chumley founded and led the U.S. Army Service Dog Training Center (SDTC). This pilot program focused on helping physically disabled veterans and families by providing them a trained service dog to assist with physical and emotional needs. However, due to lack of funding, the program closed in 2004. More recently, therapy dogs have been deployed to Iraq and Afghanistan with U.S. Army occupational therapists as part of combat and operational stress control (COSC) units with the intention "to prevent and treat behavioral health issues while in theater" (Beck et al., 2012, p. 39). These programs have demonstrated therapeutic promise, however, more research is needed to further understand their effects.

In summary, historical accounts demonstrate the therapeutic use of animals for physical, mental, emotional, and social benefits in various environments (e.g., hospitals, inpatient/ outpatient settings, and combat zones; Kawamura, Niiyama, & Niiyama, 2007; Rovner, 2012) and a myriad of populations (e.g., children, elderly, psychiatric patients, and military personnel; Brodie & Biley, 1999; Kawamura et al., 2007; Knisely, Barker, & Barker, 2012; Ruiz, 2012). There is also documentation suggesting that the historical use of animals within the U.S. military. These historical accounts, among others,

demonstrate the possible benefits of animal therapies for the treatment of war stress injuries; however, limited empirical research was performed to demonstrate the impact the animals had on the patients (Matuszek, 2010).

Differences in terminology. Overall, the current body of literature describes and denotes the therapeutic use of animals in a variety of ways. In most cases, research referred to these interventions as animal assisted therapy (AAT) or animal-assisted activities (AAA). Other terms that were cited in the literature included animal companionship, animal-facilitated therapy, animal-assisted therapy, pet therapy, or pet-facilitated therapy. Because of this lack of unification, animal-assisted interactions (AAI) is used as an umbrella term to refer to the therapeutic use of animals unless specifically referring to AAT or AAA, both of which are therapeutic approaches that have been widely utilized with a variety of populations and psychological issues (Kawamura et al., 2007; Kovacs, Kis, Rozsa, & Rozsa, 2004; Lefkowitz, Paharia, Prout, Debiak, & Bleiberg, 2005; Matuszek, 2010; Motomura, Yagi, & Ohyama, 2004).

Although similar in nature, AAA and AAT differ based on the underlying goal and intent of the intervention. AAA has been defined as "the casual 'meet and greet' activities that involve pets visiting people…[to] provide opportunities for motivational, educational, recreational, and/or therapeutic benefits to enhance quality of life" (Pet Partners, 2012). The same activity can be repeated with many people, unlike a therapy program that is tailored to a particular person or medical condition" (Delta Society, 1996, para. 1). Conversely, AAT is "a goal-directed intervention directed and/or delivered by a health/human service professional with specialized expertise, and within the scope of

practice of his/her profession. AAT is designed to promote improvement in human physical, social, emotional, and/or cognitive functioning" (Delta Society, 1996, para. 2).

Research on effects of the human-animal bond. Despite the animals' roles, AAA and AAT have both indicated to have positive therapeutic outcomes. According to the American Veterinary Medical Association, (AVMA, 2009) "The human-animal bond is a mutually beneficial and dynamic relationship between people and animals that is influenced by behaviors that are essential to the health and well-being of both" (p. 1675). The attachment that is formed between an animal and human is often experienced as a valuable and remarkable connection often characterized by affection, trust, and unconditional love (Matuszek, 2010). Studies have reported promising results when animals are part of the therapeutic process and have benefited people suffering from loneliness, lack of trust, stress, and depression (Williams & Jenkins, 2008). Friedmann (1995) found multiple benefits animals provide to humans including feelings of companionship, enjoyment, playfulness, as well as being a source of consistency, comfort, exercise, and entertainment. King (2007) attributed animals' ability to provide such benefits because they "are nonjudgmental, accepting, attentive, don't talk back, [and] don't criticize" (p. 2).

Published studies demonstrate the healing potential the human-animal bond can provide. The influence this bond can have on a person's emotional and physical health has resulted in a growing body of scientific literature in a variety of settings and populations. Results from the found literature suggest that psychological deficits are improved by therapies that use the assistance of animals. The following text describes this body of knowledge based on research conducted with civilian and military populations.

Civilian populations. Most research to date has focused on the physical and mental benefits AAIs offer to children, elderly, and psychiatric patients (Matuszek, 2010). The text below briefly describes these benefits supported by the respective research. The section closes with a specific focus on patients who experienced some form of trauma.

*Pediatric populations***.** Most AAI studies have been conducted with children and adolescents. Within medical settings, Friedmann, Thomas, and Eddy (2000) found, "The presence of a calm, attentive dog apparently moderates the stress responses more that the presence of an adult [and] a supportive friend when children were reading aloud or having a routine medical exam" (p. 9). This finding was supported by Havener et al.'s (2001) study, which used a repeated measures experimental design with 40 children undergoing dental procedures. Their research concluded that children who reported feeling distressed, experienced reduced physiological arousal while waiting in the examination room.

Many studies have been completed since then regarding AAI with children and adolescents, repeatedly supporting the benefits of AAI. However, Chur-Hansen, McArthur, Winefield, Hanieh, and Hazel (2004) conducted a literature review of AAI intervention within children hospital settings and found "nine existing research studies in the area, all with methodological challenges that make conclusive statements in either direction about the efficacy of AAI difficult" (p. 5). Their study draws attention to the need for more research utilizing methodologies that are more rigorous.

When assessing the effects of AAI with children and adolescents with emotional/ behavioral concerns, Katcher and Wilkins (1994) performed an experimental study

assessing 50 children with diagnoses of conduct disorder and attention deficit hyperactivity disorder (ADHD) and concluded that "animal assisted therapy and education has a large, persistent, and broadly distributed therapeutic effect on highly aggressive, emotionally disturbed children and adolescents with severe learning difficulties" (p. 3). In later studies, Lange, Cox, Bernert, and Jenkins (2007) utilized AAI with adolescents involved in an anger management program and reported that the dogs provided a calming effect for the participants as well as increased feelings of safety, empathy, humor, and motivation to attend and participate in the group. Braun, Stangler, Narveson, and Pettingell (2009) performed a quasi-experimental study and found that children in the AAT group reported significantly lower pain levels and significantly higher respiratory rates compared to the control group. Most recently, O'Haire, McKenzie, McCune, and Slaughter (2014) assessed the effects of a classroom-based AAI program and its impact on social functioning in children with autism spectrum disorder. The study was performed in 41 classrooms within 15 different schools. Researchers found significant improvements in "social functioning, including increases in social approach behaviors and social skills, and decreases in social withdrawal behaviors" (p. 162).

Geriatric populations. AAI has also demonstrated to be helpful with cognitive, emotional, and social functioning for the geriatric population. Cusack and Smith (1984) conducted an early study on the use of animals in a long-term care facility. Researchers compared two groups of geriatric residents in which one group interacted with puppies while other spent the same amount of time interacting with a human visitor. Results suggested that the group exposed to AAI experienced increases in social engagement and

competence, psychosocial and mental function, life satisfaction, and overall well being. More contemporary studies suggest similar benefits for reducing feelings of anger, hostility, tension and anxiety in elderly residence at care facilities (Herzog, 2011; Stanley-Hermanns & Miller, 2002).

In terms of cognitive benefits, Kawamura et al. (2007) found that AAT assisted with improving mental functioning of elderly people who were gradually loosing cognitive abilities due to aging. In another study, Macauley (2006) demonstrated the effectiveness of AAT by documenting its therapeutic effects for those who suffered from a stroke and aphasia and found that AAT was as beneficial as traditional talk therapy. Furthermore, patients reported experiencing more positive emotions during AAT sessions and were more inclined to participant in sessions when an animal was present. Speech and communications abilities also improved, as members felt less restricted by their limited vocal capacities.

Psychiatric patients. In addition to pediatric and geriatric populations, AAI has proven to be beneficial for people with mental illness including schizophrenia, depression, anxiety, and mood disorders (M. Becker, 2002; Sockalingam et al., 2008). In a controlled study conducted by Berget, Braadstad, Ekeberg, and Pederson (2011), researchers attempted to investigate the effects of AAT with adult psychiatric patients. Using a 12-week intervention of AAT with farm animals, researchers measured changes in anxiety and depression. The study employed a RCT and follow-up design with 90 patients with schizophrenia, affective disorders, anxiety, and personality disorders. Berget et al. found that within the treatment group there was no significant reduction in anxiety during the intervention. However, six months after the end of the intervention,

the anxiety scores were significantly lower than the baseline scores and lower than at the end of intervention.

Other studies have indicated that people diagnosed with depression reported improved mood and feelings of hopefulness following AAI appointments (M. Becker, 2002; Sockalingam et al., 2008). Furthermore, levels of motivation were improved and anxiety levels reduced significantly. Among those with a diagnosis of schizophrenia, improved levels of social engagements and activities of daily living were reported after AAT sessions (Kovacs et al., 2004).

Survivors of trauma. For patients with trauma histories, AAI may be especially beneficial due to the relationship between oxytocin and PTSD symptoms. Oxytocin has demonstrated to modulate brain networks associated with increasing a person's sense of trust and optimism while decreasing adverse stress or fear responses. Olff, Langeland, Witteveen, and Denys (2010) studied the role of oxytocin in PTSD and found that, through increased social support, decreases in PTSD symptoms were related to increased levels of oxytocin. Thus, research repeatedly suggests that oxytocin may play a crucial role for decreasing PTSD symptoms such as anxiety, hyperarousal, pain, sleep difficulties, interpersonal difficulties, and feelings of isolation (Olff et al., 2010; Uvnas-Moberg, 2003).

Neurobiological changes, including increases in oxytocin, have been detected when humans interact with animals. According to Yount, Olmert, and Lee (2012), close social relationships, touch, feelings of warmth, and a loving gaze naturally increase endogenous levels of oxytocin. Part of this response has been attributed to the benefits of physically interacting with an animal, which reduces feelings of stress, hopelessness, and

anxiety. Nonetheless, it is important to note, depending on the nature of the trauma, people who have been traumatized are sometimes triggered by touch. However, touch with animals is often experienced as benevolent and helpful in comparison to human touch, which can be misinterpreted. Furthermore, the repetitive touching and interaction with the therapy animal impacts a person's mood and has been reported to bring about a sense of tranquility and serenity (Creagan, 2003).

Studies have demonstrated that AAI was effective for relieving distressing symptoms for those who have experienced trauma. Odendaal and Meintjes (2003) were the first to demonstrate how interactions with a dog (e.g., playing, talking, petting, etc.) were associated significant alternations in stress-related neurohormones such as decreases in cortisol and increases in oxytocin, prolactin, and dopamine. Lefkowitz et al. (2005) supported these findings in their study, which found that AAI was beneficial for victims of assault by enhancing therapeutic rapport and reducing anxiety. According to this study, trauma makes it difficult for victims to trust others, which may be alleviated by petting and interacting with a therapy animal. More recently, Nagasawa, Kikusui, Onaka, and Ohta (2009) indicated that oxytocin levels in humans were increased after prolonged eye contact with a dog. In another study, Olff et al. (2010) found that dogs trained through Warrior Canine Connection (WCC) provided nurturing touch and offered "optimalization of social support," increasing oxytocin and supporting their role in the veterans' recovery of war stress injuries.

Military population. Following the empirical evidence supporting animals' therapeutic impact on civilian populations, programs for veterans around the U.S., curious about the potential benefit of AAI for veterans with war stress injuries, have

begun involving dogs into the lives of military members during and after deployment. Fike, Najera, and Dougherty (2011) published an article that illustrated how occupational therapists incorporated AAI to help military members adjust and cope while deployed. They reported, "As of this writing, 6 dogs have deployed to Iraq and Afghanistan, offering Military personnel a small reminder of home. Army occupational therapists led the way in this endeavor as primary handlers; the path has been rocky but ultimately rewarding." Furthermore, Krol (2012) reported on the benefits of training and using combat and operational stress control (COSC) dogs. He described, "These dogs have become an important modality in the Army's initiative to safeguard Military personnel' behavioral health while deployed, allowing COSC unit members to break down stigmas that are still present when dealing with behavioral health issues" (p. 46). These dogs are trained to function while deployed in theater. After returning, they are incorporated into VA medical centers to act as physical, occupational, or behavioral therapy dogs.

When military members return from combat or training, dogs have also been introduced to help the member reintegrate and adjust to civilian life. For instance, using a quasi-experimental design, Beck et al. (2012) performed a pretest, posttest nonrandomized control group study assessing the impact of AAT with 24 Warriors in transition (WTs). Researchers indicated that this was the first study to "formally assess the benefits of AAT with wounded service members" within a garrison environment. WTs participated in an eight-week Occupational Therapy Life Skills program with or without AAT. Outcome measures were given before, after, and follow up. Statistical significance could not be assessed due to the small sample size. The study was also limited by its use of self-report measures, which have high face-validity. Despite these

limitations, researchers were able to conclude, “Although significant differences were not found between the groups on most measures, anecdotal reports by participants and observers indicate participants eagerly anticipated being with the therapy dogs, expressed pleasure and satisfaction with the experience, and regretted seeing it end” (Beck et al., 2012, p. 38).

Yount et al. (2012) reported intentions from the Warrior Canine Connection to “systematically investigate the physiological, psychological, and behavioral benefits” of AAI programs specifically for the military population (p. 63). Thus far, anecdotal evidence from military members and their families included improvements in parenting skills and family dynamics, increased sense of calm, increased sense of belongingness/ acceptance, less reliance on pain medications, reduced startle responses, and increased sense of purpose.

Incorporating this knowledge, Operation Freedom Paws (OFP) provided dogs to veterans as a way to increase empowerment and overall well being (Cortani, 2013). Veterans were taught techniques to train an assigned dog that was able to recognize alterations in its owner’s mood and “modify their natural instinctive behaviors to alert the human to these changes” (p. 191). This pairing capitalizes "on the ability of the canine-human relationship to help them regain their purpose, worth, and value to society and their community” (p. 191). According to Cortani, this program:

> Facilitates [veterans’] recovery from the trauma of their wartime service or, at the very least, to learn to cope better with, and better manage, their day-to-day lives. They are then better able to get back out in their communities and begin to see life in a new way—with hope—because of the very special therapeutic canine-human relationship. (p. 191)

Thus, being able to teach and interact with a dog may be related to reductions in PTSD symptomology including flashbacks, avoidance, numbing, and hyperarousal (Yount, Ritchie, St. Laurent, Chumley, & Olmert, 2013). For instance, the veteran must expose the dog to different environments, increasing the canine's level of comfort in different settings and thereby doing the same for him or herself. These exercises created multiple opportunities for the veteran to readjust to civilian life and reintegrate into his or her community. Furthermore, veterans must demonstrate emotion to their dog in order to convey praise. By demonstrating positive emotions towards the dog, the veterans experienced new ways of overcoming emotional and affective numbness. Additionally, dogs are trained to attune to their owners' emotional state. Therefore, as a trainer, the veteran must hold a position of leadership, which includes modeling his reaction to various stimuli appropriately. This can be challenging as many veterans experience hyperarousal. However, by training the dog to become less reactive to startling situations (e.g., sudden loud noise), the veterans learn to modulate their own autonomic nervous system arousal.

Furthermore, the natural therapeutic effects that animals provide may also assist with facilitating feelings of hope and companionship for military families by benefiting from animals' unique capability to assist people during periods of crisis and stress. For instance, during periods of relocation or separation, animals may offer stability and support for families. This may play an important role in improving resilience, coping, and recovery to spouses and children (Walsh, 2009).

Summary. AAI has demonstrated to be helpful for a number of different people, populations, age ranges, and psychological disorders (Kawamura et al., 2007; Knisely et

al., 2012; Ruiz, 2012). These studies, among others, have suggested the benefits of AAI; however, much of it is supported by anecdotal and explorative evidence. More systematic studies are needed that support why AAI seems beneficial by adding evidence regarding under what circumstances it is effective.

Despite these limitations, the body of research supports the clinical benefit of AAI with veterans who have war stress injuries. This may be especially so for veterans who may feel depressed, traumatized, anxious, helpless, lonely, unable to talk about their experiences, and/or resistant to conventional talk therapies. Furthermore, the stigma associated with mental health issues prevents many veterans from seeking help (Campbell, 2008). Non-traditional modalities, such as AAI, may reduce this stigma because animals do not judge others based on cultural stereotypes (Rovner, 2012). Rather, animals respond to the emotions of the person and are not as influenced by culturally constructed norms of behavior.

Of late, the DoD has supplied funding to evaluate the use of AAI for Iraq and Afghanistan veterans (Ritchie & Amaker, 2012). The additional support may provide opportunities for the mental health field to further investigate the possible advantages that animals may provide veterans. One particular area of research that is beginning to capture the attention of researchers and clinicians are therapeutic horse activities, or the use of horses within a therapeutic and/or educational context. The final section of the literature review covers this topic more detail.

Therapeutic Horse Activities

Within the last ten years, therapeutic horse activities have been investigated as a potential treatment for physiological issues pertaining to war stress injuries.

Organizations around the U.S. have used therapeutic horse activities with veterans with spinal cord injuries, TBI, traumatic amputations, injuries due to shrapnel, and extending it to also include mental health issues (e.g., PTSD, anxiety, depression). According to the PATH Inti. (n.d.) website, over 300 organizations are providing this treatment specifically for veterans. Therapeutic horse activities have started to gain attention from the VA whom has begun to provide grants and funding for research, although, these resources are limited. In 2005, the North American Riding for the Handicapped Association (NARHA) and the VA established the program Horses for Heroes. This program specifically focuses on PTSD symptomology related to war stress injuries; however, it did not have a psychotherapy component.

A review of the current research demonstrates that quantitative and qualitative studies regarding therapeutic horse activities demonstrate therapeutic promise for a variety of populations, problems, and age groups (Selby & Smith-Osborne, 2013). Most of these studies illustrate rapid and positive responses to the use of horses in therapeutic or educational/learning environments. Although most research conducted has been looking at the effects of children with cerebral palsy and intellectual disabilities (e.g., L. Kaiser, Smith, Heleski, & Spence, 2006; Lentini & Knox, 2009), this population is very dissimilar to the struggles of military veterans. Thus current body of research findings merits further study with the military population.

The term, therapeutic horse activities, will be used to refer to the general use of horses for therapeutic and/or educational purposes. In the present review, a history and therapeutic value of the horse-human relationship is reviewed followed by a discussion of the terminology used to describe therapeutic horse activities. Next, quantitative and

qualitative studies are presented along with limitations of those studies. The chapter concludes with a discussion on studies specifically addressing the use of therapeutic horse activities with veterans and the benefits it may have.

History of horse-human relationships. To understand why horses are considered to have the ability to bring about psychological and behavioral changes, it is important to know the history of the horse-human relationship. According to Trotter (2012), "Historically, horses have been a beast of burden and a companion to humans. Traced back to the works of Xenophon (350 BCE), horses were used not only for war, agriculture, and transportation, but even as rehabilitation for military personnel injured in battle" (p. 203). This section briefly reviews the global and cultural impact of the domestication of the horse, leading to an enigmatic relationship between horses and humans.

Historians and archeologists disagree on the questions of when and where the first humans rode and tamed horses. Based on archeological discoveries, some believe the horse was first used for riding around 1500 BCE in the Dnieper Valley in Ukraine while others believe it occurred in Kazakhstan 6000 years ago (Olsen, 2006). The controversial discovery in the Dnieper Valley suggests that horses were ridden before the invention of the wheel, "making the equine/human partnership the first truly notable innovation to impact the spread of culture, language, and transportation" (Levine, 1999, p. 6). Although many other theories exist regarding who and when first rode the horse, historians agree that, "someone, sometime, somewhere, made the decision to climb up on a horse and ride, and that this decision brought about profound change in the course humanity" (p. 9).

According to Budiansky (1997), domesticating the horse allowed humans to travel distances up to 90 miles a day. Trading with other communities became possible and with that, an increase in social differentiation. It is hypothesized that trading exotic goods encouraged a drastic shift in the way in which people viewed themselves and their relationships to one another, fostering social hierarchies (Anthony, Telegin, & Brown, 1991). Anthony suggests that it was during this same time that hierarchical societies began to form, radically changing the structure of culture.

Furthermore, being able to cover great distances expanded the awareness of the size of the world. This realization may have led to increases in not just exploration conquests, but warfare as well. Tribes such as Huns and Mongols were able to use horses for travel, weight-bearing purposes, and could provide or restrict goods to non-horse tribes. Riding also enabled them to conquer Korea, Poland, parts of Russia, and Hungary (Hidinger, 1997). Thus, the notion of conquest was changed irretrievably with the help of the horse.

Scholars also suggest the domestication of the horse assisted with language development and diversification. "Due to the distances the horses could carry humans, the notion of a shared language became a reality, and communication across great distances became possible" (Hallberg, 2008, p. 11). With this is mind; it is conceivable to see how the domestication of the horse revolutionized human existence in profound and irreversible ways. It is also possible to expect that our relationship with the horse has continued to evolve. For more information about the cultural and historical happenings of this relationship, look to the works of Stephen Budiansky's, Lawrence Scalen's, J. Edward Chamberlain's, Marsha Levine, and David Anthony.

According to Hallberg (2008), "Understanding the possibility of co-evolution provides us with a lens through which to view our continued relationship with horses and offers us new ways to think about the role of horses as healers of the mind body and soul" (p. 12). Hippocrates noticed the potential healing qualities horses could afford humans when he described the "healing rhythm" of horseback riding (Granados & Agis, 2011, p. 191). In 1875, Chassaignac, a French physiotherapist, used riding as a form of rehabilitation for people with physical disabilities. Benefits reported from this inclusion of horses included muscle strength, improved balance, flexibility, and increased morale (Granados & Agis, 2011).

The therapeutic value of the horse-human relationship started to become more recognized as a method of physical and emotional recovery in the 19th century. Liz Hartel, the first female Olympian medalists in equestrian sport, is often cited as the main historical figure that significantly helped in the development of the use of horses in psychotherapy (Buckley & Raulerson, 2013). After recovering from polio in 1944, she was told that she would not be able to walk again. Despite this acquired disability, she continued to ride and regained enough strength to compete in the 1952 and 1956 Olympics. Hartel placed second while paralyzed from the knees down, yet was able to walk from her wheelchair to receive her silver medals. She credited her relationship with her horse and the exercises and training involved in horseback riding as the main components that allowed her recover physically and emotionally.

In 1960, Europe, Canada, and the U.S. began to use therapeutic horse activities as an adjunct treatment to mental and physical therapies. Initially, organizations using horses for rehabilitative services served individuals with physical disabilities, working

under the premise that the gait and rhythm of the horse was reparative (Hallberg, 2008). As this technique gained popularity, hippotherapy and THR centers gained momentum and the need for certification, guidelines, and ethics were needed. By 1969, the NARHA was developed which changed its name in 2011 to PATH Intl, n.d. The growth and popularity of the therapeutic use of horses for physical benefits has expanded to emotional and cognitive benefits which has led to increased attention and research efforts.

Divisions of therapeutic horse activities. The development of therapeutic horse activities as a psychological treatment modality is relatively new, which means there are discrepancies in the literature in regards to terminology. The following text provides a structure to understanding the different ways in which horses are used for physical and psychosocial benefits in both clinical and non-clinical settings. This is not to suggest that non-clinical services do not have therapeutic value, rather, the emphasis is on skill development and learning horsemanship. Although there are overlaps between these, they have distinct differences. For instance, therapeutic horse activities may differ in terms of whether they include mounted activities, if the approach is considered facilitative or assistive, the particular setting, the team involved, and the role of the horse. Furthermore, the terms facilitated and assisted are used interchangeably, yet they are considered different approaches. Hallberg (2008) clarified, "equine-*facilitated* work denotes methods in which the human professional steps back and truly allows the horse to bring about the work with the client" (p. xxxii). Conversely, "If a provider is using equine-*assisted* approaches, the horse will take a less active role in the process either acting as support staff or just being present during the session" (p. xxxiii). This

distinction is vital as it changes the role and relationship of the therapist/instructor and horse.

Clinical therapeutic horse activities. For methods to be considered as clinical services, (e.g., equine facilitated psychotherapy [EFP], equine-assisted psychotherapy [EAP], equine-assisted experiential therapy [EAET], equine-facilitated therapy [EFT]), a licensed mental health provider must facilitate the equine service (Hallberg, 2008). This may include a psychologist, counselor, social worker, or other mental health professional that has the appropriate education, training, supervision, and licensure. In most cases, a team consisting of a licensed mental health professional, an equine specialist, and a horse work with individuals or groups to address treatment goals. Typically, the licensed mental health professional designs the treatment plan, incorporating both group and individual interventions (Asselin et al., 2012). For example, during therapy, the individual or group may set up activities that call for the individual or group to use specific skills with the aid of a horse. These activities ask the client or group to illustrate specific skills such as teamwork, creative problem solving, leadership, and verbal or nonverbal communication. Most horse-related activities are grounded and riding is rarely involved. It is through these activities that individuals or groups address their treatment goals. Treatment goals may range from building trust, empowerment, and communication skills to addressing feelings of fear, self-doubt, anxiety, social incompetence, anger, and control (Davison & Denger, 1997; Leigh, 1998; Spingarn, 1999).

Non-clinical therapeutic horse activities. Programs that are considered non-clinical (e.g., equine-assisted learning [EAL], equine-facilitated learning [EFL],

therapeutic horseback riding [THR]) emphasize the educational and learning aspects of the service. Providers of these services "must understand and be able to differentiate their service from a mental health service, and be trained to facilitate only within their scope of practice" (Hallberg, 2008, p. 273). Thus, facilitators have attained appropriate education, training, and supervision to provide these services and may consult or collaborate with a mental health provider. Equine *educational* services usually take place within traditional or alternative learning institutions (e.g., day school, college, institution) with the goal of teaching students new ways of learning and understanding the course material. Conversely, equine *learning* services occur at retreat centers, recreational programs, or training centers. "The purpose and goal of these services is to facilitate the process of learning new concepts, thoughts, ideas, or notions that lead to enhanced personal success and functionality" (Hallberg, 2008, p. 235). Thus, the primary objective is to "promote, encourage, or embrace behavioral changes" through the "process of learning a new skill or task" and "demonstrating a tangible improvement in functioning life skills" (p. 235).

It can be argued that THR and hippotherapy fit under the category of a learning service because the primary focus is on teaching riding skills, which have secondary physical and psychosocial benefits (Fosdick, 2010). Both depend heavily on mounted activities but also incorporate grounded activities such as grooming and leading. Hippotherapy is considered as a "physical, occupational, and speech language therapy treatment" and includes the presence of an occupational and/or speech and language therapist (American Hippotherapy Association [AHA], 2010). Thus, it has a clinical component and may provide emotional and psychological benefits in addition to the

physical component. Similarly, despite its name, THR is not a form of psychotherapy but it has been reported in popular and scientific literature to have psychological and emotional benefits. Led by a certified therapeutic riding instructor, the rider learns how to work with a horse with the underlying intent of increasing cognitive, physical, emotional and social well-being (PATH Intl., n.d.). THR is different from recreational riding because the exercises in the program are meant to elicit not only educational and learning opportunities, but physical, emotional, social, and cognitive improvements as well (Lessick, Shinaver, Post, Rivera, & Lemon, 2004).

Research on therapeutic horse activities. The industry of therapeutic horse activities is still developing in terms of research, theory, and practice. Most of the writing regarding therapeutic horse activities has been reported in popular literature (Durham, 2011; Gonzalez & Glasch, 2010; Hare, 2009; Lancia, 2008; Macias, 2010; Schmidt, 2012; Sippel, 2011). However, the scientific basis of this modality is growing and steadily gaining approval as a therapeutic approach for a variety of mental and behavioral issues (Hassler-Scoop & Kelly, 2002; Hassler-Scoop et al., 2002). The following section reviews quantitative and qualitative research on therapeutic horse activities with adults. After a review of quantitative and qualitative studies utilizing therapeutic horse activities with adults, the following section focuses on the specific studies utilizing horses with veterans.

Quantitative studies. In the review of literature, six quantitative studies were found which evaluated the psychological benefits of therapeutic horse activities, including: equine facilitated couples therapy, equine assisted wellness, equine assisted experimental therapy, equine facilitated psychotherapy, therapeutic horseback riding,

equestrian rehabilitation, and onotherapy (use of donkeys). Populations consisted of couples (Russell-Martin, 2006) depressed and grieving adults (J. R. Graham, 2007), women with PTSD or borderline personality disorder (Shambo, Seeley, & Vonderfecht, 2010), patients with schizophrenia (Cerino, Cirulli, Chiarotti, & Seripa, 2011), intellectually disabled adults (Borioni et al., 2012) and people presenting with psychological distress, maladaptive behavioral patterns, and reduced quality of life (Klontz et al., 2007). The smallest sample size was six (Shambo et al., 2010) but most studies ranged from 20 to 33 participants (Borioni et al., 2012; Cerino et al., 2011; Klontz et al., 2007; Russell-Martin, 2006).

Studies varied in terms of treatment length, methodological design and outcome measures. Most studies collected data over a five to ten week treatment program that took place in either individually or in groups (J. R. Graham, 2007; Klontz et al., 2007; Russell-Martin, 2006; Shambo et al., 2010). Cerino et al. (2011) collected data from weekly one-hour therapeutic riding sessions for two years. No two studies used the same outcome measures. Measures included the Dyadic Adjustment Scale (Russell-Martin, 2006), and the Brief Symptom and Personal Orientation Inventory (Klontz et al., 2007). Cerino et al. used the Brief Psychiatric Rating Scale and the Positive and Negative Syndrome Scale. Shambo et al. (2010) employed the Hamilton Depression Scale, Beck Anxiety Inventory, Dissociative Experience Scale, and Outcome Questionnaire-45. Borioni et al. (2012) created a questionnaire specific to the treatment approach measuring cognitive, mental, and physical abilities. J. R. Graham (2007) included physiological measures to account for changes in blood pressure and heart rate as well as the Beck Depression Inventory, the SF-36, and a general health survey. All studies measured

pre and post outcomes. Some assessed changes during the treatment (e.g., Russell-Martin, 2006; Shambo et al., 2010) and four to six months after treatment (e.g., Klontz et al., 2007; Shambo et al., 2010).

In most studies, a control group or other comparative method was not used. Exceptions included Russell-Martin (2006) who compared solution-focused therapy to equine facilitated couples therapy and used qualitative findings from a case study, which illustrated each of the six sessions in detail. The inclusion of mixed methods provided qualitative support to the quantitative findings. Klontz et al. (2007) also used a cross sectional design and J. R. Graham (2007) was the only study to use random assignment and a control group. All studies reported positive outcomes. These results included greater relational satisfaction, marital satisfaction, and relational adjustment (Russell-Martin, 2006), significant reductions in symptoms of depression, anxiety, dissociation, and overall psychological distress, as well as increases in participants sense of mental wellness (Cerino et al., 2011; J. R. Graham, 2007; Klontz et al., 2007; Shambo et al., 2010). Findings also suggested significant improvements in autonomy, motor-practical, neuropsychological, affective-relational, and cognitive functioning (Borioni et al., 2012).

Qualitative studies. The studies described above attempted to provide evidence as to *whether* therapeutic horse activities are effective. Conversely, the studies described next focus on *what* is effective about these treatments. Common among developing mental health interventions, the current body of research for therapeutic horse activities is mostly qualitative. The inclusion of qualitative studies provides information in regards to the perceptions of therapeutic gain of the consumers receiving the treatment and offers a framework to understand the role of the horse as well as the nature of the horse-human

relationship. This evidence is essential to scientific literature because quantitative studies often do not provide the phenomenological insights of the participants.

Six qualitative studies using some form of therapeutic horse activity with adults were found in the literature. Overall, the riders whom participated in the studies described below had been diagnosed with schizophrenia, personality disorder, and/or co-occurring substance abuse (Bizub, Joy, & Davidson, 2003; Burgon, 2003; Corring, Lundberg, & Rudnick, 2011) depression and/or anxiety (Burgon, 2003) anorexia nervosa (Kunz, 2008) or trauma (Meinersmann, Bradberry, & Roberts, 2008; Thelle, 2010). The sample sizes ranged from five and six (Bizub et al., 2003; Burgon, 2003; Corring et al., 2011; Meinersmann et al., 2008) to 30 (Kunz, 2008; Thelle, 2010). All studies reported using both mounted and unmounted activities as part of their program.

The length of treatment ranged from 10 weeks (Bizub et al., 2003) to eight months (Burgon, 2003) and took place in either group or individual formats. Data was mostly collected through in-depth interviews, although two studies included observations and one added questionnaires to further triangulate data (Burgon, 2003; Kunz, 2008). Most studies interviewed participants on one occasion and were from the same riding center. Exceptions include Corring et al. (2011) who interviewed participants before and after treatment and included a follow up interview and Meinersmann et al. (2008) who interviewed individuals from different EFP programs.

The above studies seemed to report four general themes: enhancements in empowerment and confidence, changes in perceptions of the body, increases in attention and concentration, and the importance of the relationships with the horse. Firstly, repeated throughout each study were increases in empowerment and confidence.

Connected to this was an expanded sense of achievement, which seemed to be related to overcoming the fear of the horse and being able to form a bond with the horse (Bizub et al., 2003; Burgon, 2003; Corring et al., 2011; Meinersmann et al., 2008). Participants reported that these feelings were transferable to their lives outside of treatment (Bizub et al., 2003; Corring et al., 2011; Meinersmann et al., 2008; Thelle, 2010). Secondly, the therapeutic value of be able to use the body was another central theme. This benefit was reported based on opportunities of exercising, physical touch and closeness with the horse, increased body awareness, amended self-image, improvements in posture and physical shape, improved breathing, and increases in self-images and bodily perceptions (Bizub et al., 2003; Burgon, 2003; Kunz, 2008; Meinersmann et al., 2008; Thelle, 2010). Having physical contact with the horse was also reported as pleasurable and increased feelings of relaxation and security (Kunz, 2008). Thirdly, participants repeatedly reported increases in attention and concentration (Bizub et al., 2003; Thelle, 2010). These improvements were connected with increases in body awareness and the riders increasing abilities to stay present, relaxed, and maintain self-awareness.

Lastly, all studies emphasized the riders' relationships with the horse. Grounded exercises such as grooming and caring for the horse were described as important practices that fostered a trusting and respectful relationship (Bizub et al., 2003; Burgon, 2003; Meinersmann et al., 2008; Thelle, 2010). Furthermore, participants reported feeling unconditional love and deep feelings of affection and trust with the horse (Bizub et al., 2003; Burgon, 2003; Kunz, 2008). Participants attributed this relational intensity to the horse's ability to mirror and provide unconditional love and sensitivity (Corring et al., 2011; Meinersmann et al., 2008). Data also suggests that these relational benefits

positively impacted interpersonal dynamics with participants and staff (Corring et al., 2011).

Limitations of non-veteran studies. Although positive outcomes were reported in all studies reviewed above, various compromises and limitations were also found. It is important to note that the studies reviewed below were all published after 2003. This emphasizes the early stages of this field of inquiry.

Although quantitative results are promising, they are difficult to interpret due to the absence of several experimental controls, such as the lack of a control or comparison group and the use of a non-random sample. J. R. Graham's (2007) study was the only one that was randomized and controlled. Borioni et al. (2012) and Russell-Martin (2006) contrasted different types of interventions but it is difficult to know whether changes were a result of treatment, time, or other internal validity threats and/or factors unrelated to treatment. For instance, in the Russell-Martin study, once the researcher recruited 20 couples, they were randomly assigned to either the control or experimental group. Because each group was receiving some form of treatment, there does not seem to be a true control group.

Furthermore, all studies had small samples sizes ranging between 6 and 31. Although J. R. Graham's (2007) study has the strongest design, the results are questionable because only 16 people participated and fewer completed the assessment measures. This also limits the authors' ability to generalize their findings.

Klontz et al. (2007) and Shambo et al. (2010) were the only two studies that provided follow-up information. However, no data was collected or reported on individuals who declined to participate in the Klontz et al. study. Thus, the incompletion

of six-month follow-up data from over half the original participants may have suggested differences between stability of change in the group who responded six months following treatment and the group who did not respond. Furthermore, the dropout rate in this study was a threat to internal validity because of high attrition. Therefore, the data reported may look better than it actual is.

Threats to internal selection validity are additional limitations to these results. In Russell-Martin's (2006) study, relationship statuses were inconsistent (e.g., committed; faithful; monogamous; married; living together; pre-marital separated or exclusively dating). Furthermore, participants were therapy clients of the researcher who were asked at intake if they would be interested in participating. It is possible that clients were compelled to evaluate their perceived improvements more highly since the researcher was also their therapist. Similarly, the researcher/therapist may have had an invested interest in the couples who participated in the study versus the ones that did not.

Most studies also relied on data derived from the client's self-report or subjective experience that can be unreliable because of the influence of demand characteristics. For example, greater improvement in functioning could be due to client's wish to portray greater improvement rather than the truth. Furthermore, Borioni et al. (2012) developed a questionnaire for the study, and while it was informed by the International Classification of Functioning Disability and Health, it was not a validated measure. Multiple studies also employed one or two statistical measures, which weakened the statistical claims that could be drawn from the results. Additionally, no two studies employed the same instruments. Patient groups and therapeutic horse activities (e.g., equine facilitated

couples therapy versus therapeutic horseback riding) also widely varied. These inconsistencies further complicate the ability to compare results between studies.

In addition to methodological concerns within the quantitative findings, qualitative findings were also limited. The qualitative findings illustrate the therapeutic value and clinical significance of therapeutic horse activities from the riders' perspectives and provide important insights as to why riders' experienced psychological and physiological benefits. For example, while studies offered evidence that the riders experience was significant, the research(s) determine what themes are emphasized in the results. Thus, qualitative researchers must be cautions to avoid highlighting themes that reflect their own professional values. Furthermore, the presence of the research at the various therapeutic horse centers may have influenced the riders' reports of their experiences. Riders may have felt pressured to please the researcher and/or to report positively about the activity and their improvements. Additionally, most of the studies did not indicate when the interviews were conducted. It seems that most interviews occurred after treatment and thus no long-term benefits of the treatment can be concluded. Only two studies triangulated data from the interviews with observations (Burgon, 2003; Kunz, 2008). The inclusion of testimonials into other studies would have provided meaningful descriptions of the transformative mechanisms of THR identified by riders during the interviews. Unfortunately, the lack of experiential data undermines the credibility of these qualitative studies.

Another limitation present in both the qualitative and quantitative studies is the diversity within the field of therapeutic horse activities in terms of technique, population, and measures used. Furthermore, the research is not cumulative, and does consider the

findings of previous studies when constructing current inquiries. For instance, the therapeutic horse activities selected employed lacked standardization between and within studies. Even when studies did utilize the same approach (e.g., EFT), researchers and therapists used different activities or techniques. There seems to be a lack standardization and consistency among these approaches and how they are measured. Positive outcomes were reported in all studies reviewed above; however, results need to be interpreted cautiously. All studies concluded that more research is needed, especially larger and more controlled quantitative designs.

Therapeutic horse activities for veterans. The above text describes the current body of research regarding therapeutic horse activities that have been used with adults and limitations to its purported findings. Furthermore, there is a paucity of peer-reviewed literature on therapeutic horse activities' effects with veterans; yet, testimonials and anecdotal accounts are abundant. The following section describes six studies found in the body of literature in which this type of intervention was used specifically with veterans.

In one of the earliest studies with veterans, Smith-Osborne and Selby (2009) described the experiences of four Vietnam veterans who participated in THR. Researchers interviewed participants individually and as a group. Three of the participants reported symptoms of PTSD including anger, isolation, flashbacks, and insomnia:

> These symptoms seemed to improve during the riding experience and…perhaps visualization of riding can be added to their coping repertoire…All veterans expressed a sense of ongoing theistic connectedness, such that the increased exposure to nature during the riding experience. (pp. 16–17)

Smith-Osborne and Selby (2009) also reported that one rider, who was wheelchair-bound, "found that he could be in charge of his movement and that of the

horse—and be part of a team" (p. 15). He was "surprised by the benefits of riding as exercise and by how much stronger he is now…He is enthusiastic in recommending it as exercise for other veterans, young and old" (p. 16). Other veterans reported that they valued the connection and "straightforward communication" with the horse. Researchers also reported that the activity allowed them to become more active and helped them "get out of the home and do something exciting and fun" (p. 15). According to Smith-Osborne, "The results of this small multiple case study suggested that older veterans with multiple health challenges could participate successfully and safely in THR and enjoyed it as recreation, experiencing decreased boredom and negative thinking" (A. Smith-Osborne, personal communication, September 26, 2013).

While no methodological descriptions were provided, researchers provided rich descriptions of the veterans' reactions to THS, and went into specific detail with regard to their last session of THR including their interactions with the horse when greeting, riding, dismounting, and saying goodbye. From the study, it is clear that each veteran made a distinct and impactful relationship with their horse and self-reported various benefits of THR. However, the actual report of the study is brief and only describes observations made on the final session. Given these limitations, it is difficult to assess the credence one is able to attribute to the results.

Asselin et al. (2012) assessed THR by reporting the experiences of a veteran with an incomplete spinal cord injury. Results from this case study demonstrated that the THR program "resulted in many benefits for the veteran, including an increase in balance, muscle strength, and self-esteem" (p. 275). The veteran was assessed prior to the beginning of the THR program and after the first and second year of participation.

However, from the report, it is unclear how the veteran or the impact of THR was assessed during these time periods. Similar to Smith-Osborne and Selby's (2009) study, it is challenging to determine the integrity of the study as few details were provided. Although the study followed the veteran for two years of treatment, it is unclear how much of an impact THR had on the rider's physical and emotional recovery. It is suggested that horseback riding can expedite recovery due to their natural gait and rhythm. However, the rider's recovery is also likely due to time and other occupational and physical therapy interventions.

Monroe et al. (2012) presented their unpublished results of an eight-week equine-assisted activities and therapies (EAAT) pilot study, which included ground-work and mounted exercises for a group of eight Vietnam, Iraq, and Afghanistan veterans. All riders self-identified as having war stress injuries from garrison activities. The riders were evaluated pre- and post-treatment using the BDI-II. The researchers reported statistically significant findings using the Wilcox Signed Ranks test. Following treatment, all riders reported a reduction in the severity of depression symptoms with the exception of one rider whose symptoms remained moderately severe. Interviews with riders were analyzed using a grounded theory approach. Researchers identified the following themes: team work, peace, calm, comfort, positive mood and anticipation, decreased social withdrawal, increased energy, and sense of accomplishment. Based on these findings, researchers concluded that EAAT had positive impacts on the riders in regards to their recovery from war stress injuries.

This study is limited by its small sample size, use of one standardized measure, and weak statistical analysis. Despite these limitations, the study's findings continue to

support veterans' perceptions of the therapeutic benefits of this form of treatment. Furthermore, the study offers detailed guidelines for program development, which can assist in establishing best practices. Monroe et al. (2012) continue to run EAAT groups with veterans through the McCormick Research Institute with the support of the University of Central Florida. Researchers hope that their future studies will continue to increase validity, strengthen the power of the results, refine the program, and identify best practices of EAAT with veterans.

More recently, Gilling (2013) developed a pilot study assessing the effects of EAP as a treatment for veterans in Denmark. Using a quasi-experimental design, five veterans with symptoms of PTSD completed an EAP program. Data was gathered through self-report measures before, during, and after treatment. These measures included the symptom Checklist-92 (SCL), the Harvard Trauma Questionnaire, the Trauma Symptom Checklist, the Basic Need Satisfaction in General Scale, the Rosenberg Self-Esteem Scale, the Mindful Attention Awareness Scale, and the Short Form 36 Health Survey. Findings demonstrated that riders reported significant improvements in somatization, interpersonal sensitivity, and hostility. Although not significant, large effect sizes suggested decreases in depression, anxiety, and PTSD related symptoms. Researchers concluded that EAP benefited the veterans.

The study is limited by its lack of control group and was not randomized which reduces its reliability and validity. Statistical findings were also based on a small sample size and may not be interpretable. The study could have benefited from a follow-up measure, which may have provided additional data on long-term effects. Other limitations include inconsistencies among the therapist/instructor leading the sessions and

use of different horses. For instance, in some cases, the riders could choose the horse and in others, the riders were assigned a horse. This inconsistency may have limited riders' abilities to build a relationship and develop trust and familiarity with their selected horse.

That same year, Abrams (2013) also completed a phenomenological dissertation, which examined the experiences of five licensed/credentialed mental health professionals who use EFP/EAP with veterans diagnosed with PTSD. Interviews were conducted and seven themes were found: "The horse-human relationship," "Building trust," "It engages people both mentally and physically," "From the beginning," "Nonverbal communication," "Emotional safety," and "A faster vehicle." Although this study did not directly address the perspectives of veterans, it provided a new conceptualization as to why some mental health professionals prefer EFP/EAP interventions for veterans with war stress injuries. Furthermore, Abrams connected these themes to the common factor model (Cooper, 2008; Cooper & McLeod, 2007), suggesting ways in which the elements of client, therapist, collaborative relationship, and specific factors were reflected in and supported by the EFP/EAP interventions.

Lastly, Duncan et al. (2014) researched the healing qualities of horses among veterans with PTSD. In this pilot study, 31 veterans diagnosed with PTSD engaged in seven equine-assisted learning (EAL) sessions. Twenty-seven spouses/significant others were also invited to participate to provide additional support and encouragement. Riders were evaluated using two self-report measures that were yet to be validated but both were specific for EAL programs for veterans with PTSD. The first was the Horses Relieving OperationaL Stress Through Experiential Relationships (HOLSTER) scale, which consisted of 35 items. The second was the Benefitting from Experiential Learning

Together (BELT) Scale, which consisted of 34 items. Both assessed the "acquisition of interpersonal skills and knowledge toward using a self-mediation process; and the perceived relief from PTSD symptoms during the EAL session" (p. 66). Findings suggested that both veterans and their spouses/significant others:

> Acquired new skills and knowledge to implement a self-mediation process to help work through their relationship issues. Subsequently, 100 percent of veterans, and 96.0 percent of the spouses/partners reported learning new and/or enhanced communication and conflict resolution skills that gave them hope for improved personal relationships as they move forward…The findings that 87.1 percent of the veterans reported reduced PTSD symptoms during the EAL session suggests that the horse activities elicited positive experiences. (Duncan et al., 2014, p. 68)

The findings from this study are promising and "serves as a seminal document for continued research to obtain an optimum level of empirical evidence to satisfy the requirements of the scientific community toward establishing appropriate PTSD-tailored EAL programs as evidence-based practices" (Duncan et al., 2014, p. 69). However, limitations need to be addressed. Most of the riders in this program were male, thus, the results may be more representative of how male veterans respond to this treatment. Furthermore, as mentioned, the measures used are specific for this treatment and population yet; more data is needed for the measures to be normed and validated. At this time, it is undetermined how reliable the instruments are or the conclusions that were drawn. The study would have also benefited from clarifying when and how the assessments were administered and if follow-up data was collected. Nonetheless, the results support the idea that therapeutic horse activities programs tailored to PTSD related symptoms may "be considered in the long-term mental health strategies for veterans and members of other military/paramilitary organizations exposed to combat trauma" (Duncan et al., 2014, p. 69).

The growing body of scientific and popular literature suggests that the therapeutic use of horses is a promising intervention that may provide unique avenues for coping with and recovery for veterans and active duty military with war stress injuries (e.g., Asselin et al., 2012; Duncan et al., 2014). Therapy with horses may be especially advantageous for veterans with both mental and physical disabilities. To date, limited empirical research has been completed using THR with veterans. Therefore, more empirical evidence is needed in order to determine whether the use of horses as a means of therapy is beneficial for this unfortunately growing population of veterans with war stress injuries.

Statement of Purpose

As indicated above, there have been an increasing number of returning veterans with war stress injuries (Fischer, 2014). With the rising number of wounded military personnel, there are not enough psychotherapeutic services to meet the current demand of care for returning veterans from Iraq and Afghanistan. Although some forms of intervention strategies have been deemed successful, there is therapeutic promise in the use of THR with psychologically traumatized individuals. However, more research is needed in order to understand veterans' experiences of THR and the clinically meaningful outcomes it may provide.

Therefore, the purpose of this case study was to describe THR as an activity with a particular eye for its potential clinical value as an effective treatment for veterans with war stress injuries. The activity of THR will be described from the perspectives of war veterans, instructors, and volunteers located within an organization. A qualitative case study will facilitate a rich understanding of the subjective experience of THR, help

identify some of the mechanisms of therapeutic change, and produce themes to be investigated using quantitative approaches. Through multiple interviews and observations, the study will describe the unique and clinically meaningful potential of THR for veterans with war stress injuries.

Research Methods

Methodological Rational

The focus of this study was on the activity of therapeutic horseback riding, what it involves, what happens to the veterans as they relate to the horse and interact with it, how the veterans experience the activity, and how this intervention impacts the veterans' recovery process. A qualitative case study approach was used to facilitate a richer understanding of the therapeutic effects of this mode of therapy. According to Creswell (2007), the subject of a case study can be one or several individuals, a group, a program, or an activity. In this case, the activity of THR will be explored through the lens of participating data sources. This case was a bounded system, constrained by time (three months of data collection) and location (situated within a single organization). According to Creswell (2007):

> Case study research is a qualitative approach in which the investigator explores a bounded system (a case) or multiple bounded systems (cases) over time, through detailed, in-depth data collection involving multiple sources of information (e.g., observations, interviews, and audiovisual material, and documents and reports), and reports a case description and case-based themes. (p. 73)

This approach was exploratory and was preferred over other quantifiable methods because of the detail of real-life, clinical experiences (Yin, 2010). For the purposes of this case study, an intrinsic approach was used to promote a greater understanding of the participants' unique experiences **(**Stake, 2010). Hancock and Algozzine (2006) indicated:

> Researchers engage in intrinsic case study research when they want to know more about a particular individual, group, event, or organization. Using an intrinsic case study, researchers are not necessarily interested in examining or creating general theories or in generalizing their findings to broader populations. (p. 32)

The underlying assumption of this approach "is that there is an essence or central meaning of an experience shared by individuals that can be investigated and explained through research" (Hancock & Algozzine, 2006, p. 9). Thus, a phenomenological data analysis of themes was chosen to describe and understand the meaning of various people's lived experience of THR.

Location of Study

Data was collected at Rainier Therapeutic Riding (RTR), the first and largest PATH International Premier Accredited Center, which specifically serves military veterans and their families. Most veterans who visited RTR were suffering from a range of war stress injuries including PTSD, TBI, and other mental and physical health issues. According to RTR, the organization "provides therapeutic horsemanship services to [approximately 60] wounded active-duty and veteran service members and their families [each week]" (RTR, n.d.). Their organization is made up of 12 specially trained equine specialists, five PATH International certified instructors, and over 75 volunteers.

RTR is a 501c3 non-profit charity and provides therapeutic horsemanship services at no cost. They do not receive government funding for their program and therefore depend on donations, sponsors, grants, and community support. Veterans are mostly referred from the Warrior Transition Battalion at Joint Base Lewis McChord, an Army/Air Force Base. Veterans seeking assistance with war stress injuries are also referred to RTR from the Veterans Administration and private referrals.

Participants

The identified "case(s)" for this study were the members of RTR including veterans, equine instructors, and volunteers. Nine participants were interviewed. Two

were equine instructors and seven were veterans, three of which were also volunteers. Veterans self-identified as having previous and/or current symptoms/diagnoses of PTSD, TBI, panic, anxiety, and/or depression. Veterans also reported problems with memory, social isolation and discomfort, alcohol use, anger management, and family/interpersonal conflicts. Three participants reported having previous experience and training with horses. Thus, for most of the veterans, their participation in the program was their first exposure to horses.

Procedures

After obtaining approval from Antioch University's Institutional Review Board, participants were invited to participate in this study. Interested participants were provided with an informed consent form (Appendix A) that described the nature of the study and the confidentiality of information.

According to Balbach (1999):

> The method for doing a case study cannot be thoroughly planned, because as data collection unfolds and analysis begins, the evaluator becomes aware of new paths that are worth pursuing. It is often impossible to know in advance all the necessary questions, or all of the people with whom it would be useful to speak. Thus, good case study evaluation requires sensitivity to the environment and to people under study. This sensitivity allows the evaluator to make quick decisions, and take advantage of new opportunities. (p. 13)

The sampling strategy that was used is what Creswell (2007) calls "purposeful maximal sampling" by interviewing various informants who convey different perspectives on the activity. An informant assisted the researcher in recruiting participants who could provide a wide range of perspectives on THR. Participants were selected based on their comfortability meeting with the researcher as well as their

experience and involvement in the THR program. Individuals who were active-duty members, or who had fewer than two THR lessons, were excluded from the study.

Interviews. Nine semi-structured interviews, lasting 60 to 90 minutes, were conducted with veterans, instructors, and volunteers. Please see the interview protocol (Appendix B) for the listing of the planned interview questions. All interviews were recorded, stored on an encrypted flash drive, and transcribed verbatim. Participants were informed that any identifiable information collected during the interviews would be removed or altered to protect their privacy. Additionally, typed transcriptions, a preliminary draft of themes/descriptions, and interpretations based on the interview were given to the participants to verify and check for accuracy. At this time, participants were given the opportunity to review, edit, change, or redact any information collected during the interview. Informants were asked: Is this description accurate and consistent with your experience? Is there information that needs to be added, changed, or taken out? Six of the nine participants replied and no edits were requested.

Observations. The researcher conducted observations at RTR. During the observations, the researcher focused on how the various members (e.g., veterans, instructors, and volunteers) of RTR worked together while engaged in THR. These observations took place before and after interviews. During this time, the researcher used an observational protocol (Appendix C) as a method for recording notes in the field. These field notes consisted of both descriptive and reflective information.

Audio-visual information. Videos and images of THR within the RTR organization were reviewed. These consisted of archival videos and images as well as

videos and images posted on the Internet, RTR's website, and youtube.com. Videotapes helped to triangulate observed interactions between the horse and rider.

Data Analysis

Data analysis followed Creswell's (2009) systematic process of interpreting textual data. Once the raw data was collected, information was organized and prepared for phenomenological analysis. This involved transcribing the interviews, typing up field notes/observations, and sorting data into various categories depending on the informant. All data was reviewed repeatedly and thoroughly to obtain an overall sense of the information including the depth of the data, the general tone and ideas conveyed by the informants, initial impressions, and possible uses of the information.

According to Wolcott (2008), qualitative researchers collect large amounts of information, however, he warns that:

> The critical task in qualitative research is not to accumulate all the data you can, but to "can" (i.e., get rid of) most of the data you accumulate. This requires constant winnowing. The trick is to discover essences and then to reveal those essences with sufficient context, yet not become mired trying to include everything that might possibly be described. Audiotapes, videotapes, and now computer capabilities entreat us to do just the opposite; they have gargantuan appetites and stomachs. Because we can accommodate ever-increasing quantities of data—mountains of it—we have to be careful not to get buried by avalanches of our own making. (p. 39)

Once familiar with the data, it was be coded by hand. "Coding is the process of organizing the material into chunks or segments of text before bringing meaning to information" (Rossman & Rallis, 2012, p. 171). This initial coding was conducted by categorizing similar ideas by colors and eventually labeling those categories with a theme. Once all sources of information were color coded, a list of themes was made (Creswell, 2009). Themes with similar patterns were clustered together. Themes were

then re-checked and compared to the original data to see if new categories and codes developed. Themes that related to one another were grouped into similar categories. Concept maps were utilized to visually depict themes, relationships, distinctions, and overlap. Internal homogeneity and external heterogeneity was assessed to ensure that the themes cohered meaningfully within one another while also being identifiably distinctive between each other.

Once themes were identified and interrelated to one another, a list was created. This list was used to perform analysis on each informant. The meaning of the themes and descriptions was interpreted and checked for accuracy by the informants. Furthermore, codes were cross-checked by two doctoral-candidate researchers. These researchers were trained on how to assess for codes to increase intercoder agreement.

Ethical Considerations

All research informants provided informed consent and were made aware of the study's potential future publication. Although not directly pertaining to privacy, this was an effort to increase understanding and personal empowerment of research participants. The researcher protected the participants' information by storing the transcriptions on an encrypted hard drive. Transcriptions were free of names, locations, occupations, etc. The researcher also provided an opportunity for informants to review and change any information prior to finalization. This was a way to increase the authenticity and reliability of results. Specific, identifiable quotes were removed from the data or identifying pieces of information in the text were changed to maintain privacy.

The process of describing the impact of THR related to war stress injuries had the potential to cause uncomfortable feelings. Thus, it was possible that informants to feel

physical, psychological, or emotional discomfort when related experiences of war or combat were recalled or when attention was focused on mental or emotional distress. To address this concern, the researcher adhered to the informed consent, respected the voluntary nature of participation, and put the interests of the informants ahead of the research objectives. Informants were free to withdraw their consent and discontinue participation at any time without penalty. Furthermore, participation in the study in no way affected their participation in future studies or future relations with RTR. Participants at times, became tearful during the interview, however, no notable signs of distress were reported or suspected. Participants were informed of additional safeguards in the event they experience emotional distress such as access to crisis hotlines.

A unique ethical consideration to this study is the participants' physical safety. Working with large animals, such as horses, can be dangerous has the potential to cause physical harm and injury. To prevent such harms, the horses at RTR had been trained with Clinton Anderson Down Under Horsemanship Fundamentals and had been tested for the program. This was not a concern during the interviews as none of the interviews took place in the direct presence of a horse.

Validation Procedures

Creswell (2009) suggests a number of validity strategies and reliability procedures for qualitative research. Combinations of these strategies were used including member checking, thick descriptions, providing discrepant or negative information, and clarifying bias. As indicated above, a way the researcher tried to prevent this study from being a narrative of her own opinions was by inviting the informants to edit, change, add, and/or delete any aspects of the report. This was a type of qualitative validity to ensure the

accuracy of the findings and allowed the informants more control over the study's outcome. Another validity strategy that was employed was the use of rich, thick descriptions. These descriptions added validity to the findings by detailing the activity/setting and providing multiple perspectives about an identified theme. Furthermore, codes were cross-checked by two doctoral-candidate researchers to increase intercoder validity.

In addition to validity strategies, qualitative reliability was ensured by the following steps: checking transcripts for mistakes during transcription and ensuring codes were consistent across data by frequently comparing codes with data and writing memos and field notes about codes and themes and their definitions (Creswell, 2009). Detailed procedures of the case study were also documented clearly to ensure that the approach was consistent across information sources. External reliability, such as generalization, has limited use within qualitative research design. Applying results across different settings and/or populations was not the intent of this study. McLeod (2001) reported, "quantitative research develops its validity through comparing scores, but qualitative researchers can only compare sets of words" (p. 182), Rather, attention was focused on particulars; and data was interpreted within the context of a particular site.

Owning and acknowledging researcher bias is also an imperative part of the research process. According to Mehra (2002):

> The researcher can't separate himself or herself from the topic/people he or she is studying, it is in the interaction between the researcher and researched that the knowledge is created. So the researcher bias enters into the picture even if the researcher tries to stay out of it. (para. 2)

Therefore, it is important to emphasize that the researcher is a doctoral-candidate at Antioch University Seattle (AUS) who had a vested interest of the experiences of

veterans. Her initial multi-case study (LaFleur & Sveund, 2012) interviewed women who experienced subsequent losses due to war-related activities, which inspired her to learn and understand more regarding the widespread influence of war. She then investigated the impact of war within her own community at AUS through the qualitative method of photovoice (Sveund & LaFleur, 2013).

Results

Four primary themes were found in the data: community support, relationship, transferable skills, and motivation. The text that follows describes each primary theme, which is further divided into secondary, and at times tertiary, subthemes. See Table 1 for a visual illustration of the primary themes along with their respective secondary and tertiary subthemes.

Table 1

Primary, Secondary, and Tertiary Themes

Primary	**Secondary**	**Tertiary**
Community Support	Appreciation and acceptance	
	Non-intrusive atmosphere	No pressure to talk about experience
		Gradual pace of participation
	Peer support	
		Sense of normalcy
		Providing and receiving support
Relationship	Task dimension	
		Ground work
		Riding
	Emotional dimension	
		Leadership and respect
		Horse as therapist
		Attachment and bond
		Phenomenon of mirroring
		Mind-body congruency
Transferable Skills	Emotional domain	
		Autonomy
		Empowerment
		Self-esteem/confidence
		Emotional regulation
	Cognitive domain	
	Physical domain	

	Social domain	
		Communication
		Role and responsibility changes
		Rebuilding connection
Motivation	Reason and purpose to live	
	Continued treatment	

Community Support

Community support was coded when veterans described an activity of THR, riders, instructors, and volunteers that spoke to the importance of community as this was repeatedly emphasized as a significant influence on their veterans' recovery process. A participant reported, "I have this support that I have here, because I have people who I know are going to be there for me." The theme of community support has three subthemes including the importance of feeling appreciated and accepted, working in a non-intrusive atmosphere, and providing and receiving peer support. These subthemes are described in more detail below.

Appreciation and acceptance. Feeling accepted and appreciated were repeated themes participants reported. A component of these experiences were feeling welcomed and having a sense of belongingness. A participant described, "The military does not want them anymore" even though they have "given their hearts and their lives to being in the military." Another expressed that because of the war stress injuries, the veterans feel as if they are "unwanted soldiers." Part of the community support veterans received was "helping these [soldiers] realize that they are really valued." Feeling valued was also reflected in the following statement. "I understand [the staff] are volunteering to help

with this program and they are not getting any money. They are doing it from their heart and they are trying to invest back into the veterans."

In addition to feeling wanted and appreciated, participants reported feelings of acceptance. A rider indicated, "I was afraid to take little steps to get better because I was afraid that people would say 'Oh, you got into a car last week so why can't you get into a car this week.'" Another participant reflected on messages from the THR community, which emphasized, "You are okay to be whoever you are. Whoever wakes up this morning is who we will accept." Feelings of friendship and family within the community were also emphasized. "They care about you and they understand you have been through crap." To illustrate the level of acceptance felt within the THR community, a rider told the story of a time when her "worst fear happened;" a panic attack while riding. She described:

> At first it was horrible and I thought it was the worst thing in the world and they were going to kick me out of the program, they were never going to let me come back and everything was going to be bad.

In response to her panic, she reported that three different instructors approached her and provided her reassurance.

> I've never had this reaction. Most people are like, "Why are you freaking out? It's not that big of a deal, what's wrong with you?"…I grew leaps and bounds that day. I was like, "Okay, these people accept me for whatever I am.

She continued and expressed that, "being able to be in this community and still be allowed to freak out and still be allowed to have my moments of being scared gives me the power and the right to be that other person who *is* capable."

Experiences of appreciation and acceptance from the community also seemed to help with the re-establishment of trust and safety. A rider described, "I had nobody to

trust, I had nobody to count on, I had nothing until I came here." Others described the importance of making trusting bonds with not only the horses, but the volunteers and instructors as well "because they are just as big of a part of this as the horses." As trust and feelings of safety were rebuilt, participants reported an increased ability and willingness to move outside of their "comfort zone." For instance, "[The instructors] push me just enough because I know it's safe but not so much that I'm going to get hurt…they make me be a better person." Thus, the sense of an accepting and understanding community environment provided veterans with a safe foundation in which they could engage with their recovery process.

Non-intrusive atmosphere.

No pressure to talk about experience. Another theme connected to community support was the importance of being in an environment that felt non-judgmental and non-intrusive. Riders indicated that they did not feel pressured to talk about their lives or combat experiences. Participants emphasized the importance of not having to "deal with people who haven't been there and doesn't know." Subsequently, riders compared their experience of traditional "talk therapy" to the THR program. Overall, they reported that traditional therapy felt isolating, stigmatizing, and were separated from their community. Some reported feeling disappointed and frustrated by the care they received in both VA and community health settings. "I was really struggling with trying to adjust back to civilian life and I had a lot of trust issues and sat down with counselors and talked to them, [but] I just didn't find it all that helpful." Another indicated that the mental health professionals "don't understand what they are saying or how the questions are being taken or any of the rest of it. It gets frustrating." Furthermore, a rider reflected on her

attempts to try to connect to mental health settings and expressed, “I couldn't count on anything so I was afraid of everything; so I stopped trying things because everything I tried made things worse.”

To help the riders feel more comfortable and less intruded upon, volunteers and instructors were trained to “respect and honor the privacy of the riders.” Thus, riders reported not feeling pressured to socialize or make “small talk” with others unless they initiated the conversation. A participant indicated, “They are all trained to not be inquisitive or ask questions or try to get personal. They are all here to teach the horsemanship in a safe manner. And the horse does the rest.” Another commented, “The horses do the hard work and they don't ask questions and we don't have to talk to them.”

The theme of non-intrusiveness was also seen in the veterans’ preference of their recovery occurring in a non-clinical environment. “[The program] is not calling itself a *therapy* program. People are not saying ‘We're working to fix you or that we are going to make you better.’” The riders “Tell us that they don’t want us to be the therapist and they will be angry at us if we ask them ‘What’s going on?’” A participant reported, “None of us know anything about helping people in that capacity but we know how to use the horses to show people how to live and how to get back to who they want to be.” Supporting this statement, a rider commented, “Coming here and knowing that there are no counselors here who are going to say ‘How did that make you feel?’ provides a sense of relief.” Rather, the program emphasizes the acquisition of horsemanship skills through the process of THR.

> We are not an equine assistant psychotherapy program, which means we are not doing psychotherapy. So, a lot of the processing is happening elsewhere either with the therapist or by themselves or between them and the horse. They don’t process with [the staff].

A rider commented, "[The staff] don't necessarily have to be counselors, or try to take on someone else's issues. That is the horse's job. All they really have to do is teach the horsemanship, and the rest seems to work itself out." These conversations "come out eventually but it is when the soldier is ready or something happens and they want to share." A rider commented on how important it was for her to feel that her pace of "opening up" was respected and expressed, "Let [the veterans] come around, when they are ready and willing, they'll talk about it, but until then just let me do what I need to do, let me come around rather than imposing and asking me too early." In sum, the non-intrusive environment of THR alleviated riders from feeling pressured to talk about their trauma-related experiences, a commonly reported discomfort encountered in mental health settings.

Gradual pace of participation. Allowing the riders to open up as they gain comfort and familiarity was reflected in permitting the riders to participate at their level of readiness. "You just have to take that one step and they say if you fall off the horse you have to get back on." A rider explained:

> Just coming into the lobby was too much for me. There were too many people, too many places, I didn't know where somebody could be hiding, what could be going on and all the unknowns are what scared me…and every day I overcame one little thing and finally got into the arena and finally got matched to a horse.

Riders were not expected to have horse experience. All levels of experience were welcomed. Mostly, riders reported having limited opportunities with horses and expressed feeling intimidated and fearful of horses. A participant reported, "I know that not all people that come into this program are going to be horse people but they are going to learn something that is going to be so valuable to them." Another rider reported:

> You just have to give it a chance, just show up…You don't have to ride, you don't have to do anything just come out…I think that if people can just walked in the door, they'll see that there are things going on here and that lives are being changed and people are being helped every day.

Thus, the gradual pacing of THR gave riders permission to set and complete achievable goals, allowing them to feel respected and appreciated for their efforts.

Peer support.

Sense of normalcy. All participants emphasized the importance being part of community where other veterans were present who could understand their experiences. This provided a sense of normalcy and understanding. A veteran described, "It's nice to know that someone else is going through what we are going through." Knowing that:

> I'm not the only one…[and that others] have been to that dark place and a lot of them had a gun to their head or had their perfect plan and some of them have tried it and failed. So it's not just me, it's [THR], something that every veteran who has PTSD needs but is not probably ready to admit yet.

Furthermore, by being around other military members, "[Veterans] can see that having PTSD is not a death sentence, it is not something that is going to kill them; it's knowing that you can work through it and you can move on." Another rider expressed that the presence of other veterans "helped me decompress, it helped normalize what I had been through." These experiences seemed to provide veterans with a sense of normalcy and that they were not alone in their struggle.

Providing and receiving support. In addition to feelings of normalcy, participants spoke of experiences of receiving and providing support to and from fellow veterans. A rider described, "I understand where they've been, I have been there." Riders/volunteers with more experience and familiarity with the horses seemed to "lend a helping hand," providing encouragement and reassurance.

> I can see where a rider may be struggling…You can tell they are nervous or they are throwing the rope wrong because they are so concentrating and needing do it exactly right…It helps to say, "Hey, this is what you want to do here in this situation" and you see a light bulb come on and they don't have that problem anymore.

This type of peer support also transfers to emotional/transitional issues. For instance, veterans reported greater levels of comfort talking with other veterans. "A couple of guys I have helped, some of them were having serious issues in deployments and having been there, having worked through some of them myself. I think this is the best part of [THR] is helping other veterans." Another veteran described, "I had the opportunity to help other people; this has helped me more." She described an experience in which another veteran was new to the program and:

> She needed me to be that strong person and to bring her in and introduce her to people, introduce her to the horses and help her stay. All of a sudden, I'm this person who can help somebody else and I'm this person who has something that someone else needs. I didn't have that before; I didn't have self-worth or any reason to live.

Thus, the reciprocal peer support seemed to remind veterans of the gains they had made their recovery process and that they have something of value to offer others.

Relationship

All participants referenced the importance of the horse-human relationship throughout the interviews. This relationship was also repeatedly represented during observations and review of videos and photographs. To describe this theme, it has been divided into a task and emotional dimension, similar to Yorke, Adams, and Coady's (2008) study on the therapeutic impact of this bond with trauma survivors. The task dimension includes groundwork and riding subthemes related to horsemanship activities such as safety training, grooming, sensitization and desensitization, and round penning.

The emotional dimension focuses on leadership and respect, horse as therapist, attachment and bond, the phenomenon of mirroring, and mind-body congruency. These subthemes are illustrated in more detail below.

Task dimension.

Ground-work. When beginning to work with a horse, it is imperative to understand how to care for one. Therefore, one of the first tasks riders learned was how to groom the horse using the proper tools and sequence. Participants reported that in order to build a bond with the horse, it was necessary for them to spend time grooming and touching the horse. "Relationship building starts first with grooming the horse. Even just that very first time they walk up to a horse, many of our riders they need about five or ten minutes of just talking with a horse first." In terms of safety, the program taught riders what signs to look for that indicates relaxation or aggression in the horse. These signs are "a universal code or decoding devise" to understanding behaviors such as "lowering their head, looking, blinking, holding a hoof up, and chewing are all signs or relaxation." Thus, grooming and safety training were initial steps to help the horse relax as well as build rapport and trust.

Additionally, sensitization and desensitization exercises were used to build and maintain the relationship. These activities helped the horse become comfortable and accustomed to the tools used during unmounted and mounted activities. An example of this can be seen when a rider takes "either their lead rope or their stick whip and just stroke [the horse] with it or flip it over their neck, flip it over their back, flip it behind their hind quarters…So they don't develop a fear of the tools that you use." Another rider commented, "You take a reign and you throw it over his back and you slowly pull it

and you watch his body gestures…you monitor the body." This was an essential part of relationship building because, "With every sensitization exercise, something that makes the horse use their brain and their thinking, you should follow that with a desensitization exercise so that you don't get them so on edge that they are going to be spooked."

Participants explained that horses do not have "binocular vision," which creates a blind spot directly in front of them. As a result, "What doesn't freak him out in the left side they may absolutely go crazy with the same thing on the right side. So you've got to get them used to both." A participant reported, "Because the horse…is in a state of hyper vigilance all the time…they are always looking for that danger." Therefore, "desensitizing the horses is actually good for the soldiers who have post-traumatic stress too because a lot of times, things can just spook them but they have got to learn to be calm…so not only are they helping that horse learn how to become less reactive, but they are too."

In addition to grooming and sensitization/desensitization exercises, riders learned how to complete round penning exercises. Participants reported that the round penning exercises were the most important aspects of THR. This exercise took place in a 50-foot circular pen with the rider standing in the center. The object was to try to get the horse to move in the direction of the rider's command. In this activity, the riders needed "to relate to that horse the same way a horse relates to a horse…they learn how intuitive that horse can be." A rider commented, "In [the horse] world, if you are making them move their feet…then you are establishing yourself as the leader."

As the horse and rider begin to understand one another in the pen, the horse responded to the subtle cues of the rider. Once the rider developed a connection with the

horse, the horse began to "make the correct change of direction." Eventually, the horse was "cued into your every move" and as soon as "you turn your back to that horse and walk away, that horse will join up with them." Participants reported that *joining* occurs when the horse accepts the rider as its leader. Thus, once the horse joins up, "that horse is going to follow you whichever way you are going to go." After a join up, a rider expressed, "This horse has accepted me as a leader" and described this experience as "a huge moment of building that self-esteem and confidence." Another described the join up as, "nothing like I have ever really experienced before, somehow it is like the horse had gotten inside my head, it seemed to be depending on me." Another rider explained, "I just started pointing and he would go and I would walk and he would follow…he didn't know what he was doing but he knew that I needed him and that he needed me." Thus, the foundation of the horse-veteran relationship was built and maintained through ground-work activities and allowed this dynamic relationship to feel safe, trusting, and respecting.

Riding. Once rapport and trust has been established, veterans learned the skills for riding. When riders were ready to saddle and mount, they reported that "everything we do, we are trying to teach them we are not a threat. We are not here to hurt you. We are here to work together." Thus, when the time comes to mount the horse for the first time, riders reported feelings of anticipation, accomplishment, and achievement.

During mounted activities, riders had a team of side walkers who assisted them in controlling the horse. The team, including the instructor, volunteer, and side walkers, guided the rider through the steps of saddling, mounting, sitting, guiding, walking, and dismounting. The side walkers, whom were usually active duty military members, left

once the rider felt comfortable enough sitting on and walking the horse independently. When the riders no longer needed their side walkers, participants described this as a moment of empowerment that increased their self-esteem and confidence. They reported feeling "powerful" and "in charge." Riders also reflected on the feelings of disbelief and amazement that such a large animal would allow them on their backs. As their riding skills developed, riders continued to participate in advanced lessons including trail riding and obstacle courses. These lessons required advanced riding skills as well as high degrees of conformability, confidence, and control.

Emotional Dimension.

Leadership and respect. When initially developing a relationship with the horse, riders repeatedly emphasized the need to develop "mutual respect and leadership." A rider described, "The ideal relationship has mutual respect and where [the horse] trusts you that you are not going to put them in danger or put them in a situation where they are going to get injured." In order to establish this respect, the riders expressed the need to understand the hierarchy within the herd. "In the horse world, there is a pecking order. There are never two equals." Thus, "Whatever horse is above or below the next horse in line, you want to be above the horse you are working with."

Establishing respect and trust within the relationship required veterans to embody a leadership attitude. A participant reflected on this change and reported that he learned that "[I] am in control of my life" and am "worthy of being a leader. This horse needs a leader and [I] need to be that leader for that horse." Another rider described, "The horse is looking to you and trusting you and wants your leadership and that starts to build the confidence and self-worth."

Many riders reported that they felt challenged when taking a leadership role. For instance, according to a veteran, entering into a leadership position "was a hard role to take because the last thing that I felt like doing was being the one in charge." Another reported feeling apprehensive and unfamiliar with asserting herself and "taking charge." Being in the round pen, she described, "It is like one of you has to be the leader and it has to be you." She felt pushed into a role she was initially afraid of and experienced what it is like to be a leader and be respected. Later she described, "I was surprised when I heard that [my horse] would do stuff for me that he wouldn't do for other soldiers…I learned that respect is not transferable." To support this statement, another participant described, "Even though I can get my horse to do this, does not mean that my horse is going to do that same thing for you, you have to earn that respect first before the horse can say you are worthy." Thus, by gaining respect and trust from the horse, the riders expressed increased feelings of empowerment, confidence, worth, and self-esteem.

Horse as therapist. Another repeated theme related to the emotional dimension of THR was the concept of the horse "being the therapist." For example, "What is absolutely amazing about this program is that the horses are the therapists." Another rider expressed, "These programs work because the horses do all the work. The horses are the ones that take on all the stresses that we bring in with us and they really are the therapists."

The phrase of "letting the horses do the work" was repeated throughout the interviews. In THR, the horses took the primary role of facilitating the process. The instructors and volunteers were there to assist and provide a safe environment. "The

horse is really the one that makes that decision of how they are going to engage with the rider that day." A participant commented:

> Sometimes [the horses] are pushy when that rider might need to set a boundary… Sometime the horses will be soft and sweet, sometimes the horses will be perfect and sometimes they will be naughty…So it's the horse's job to kind of figure out what is going on [with the rider] and how to interact with them.

For example, a rider reported that her horse "Made me work in the ways that I couldn't have done without him…We just did what we needed to do." Another participant described:

> When [my horse] comes into this arena to do his work, he knows each of his riders and what they need. If that rider needs a little more playfulness or if he needs to be just rock on solid still…this horse can change how he acts to match whatever that rider needs.

As their relationship with their horse/therapist developed, participants repeatedly reported increased abilities to express vulnerable emotions with their horse. One way these emotions were expressed was through the tenderness and affection the riders had towards their horse. A participant reflected, "It seems like [the veterans] are seeking that tenderness that they really miss and this is a safe to place to do it." During observations and audio/visual recordings, riders interacted with their horse in soft and gentle ways. They stroked their mane, rubbed their back, looked deeply into their eyes, listened to them breathe, and at times, wrapped their arms around the horses chest, because the "horse understands what is going on."

Riders also described the experience of emotional safety by reporting having shared their emotions in the presence of their horse. Many reported feeling numb to their emotions or unable to process difficult emotions connected to the war stress injury verbally. A participant described watching veterans mount their horse for the first time

and seeing them "break down" and have an "emotional outburst and just start sobbing…and need you just to hold them on there." Another rider indicated, "If I needed to cry, [my horse] would just stand there and let me cry on his shoulder and if I needed to freak out he would let me do that…because I knew he wasn't going to crush me, I knew he wasn't going to hurt me." A rider summarized, during these experiences, "the horses do the work" by "letting those emotions come out in a safe way and knowing that that horse is still going to be with you and you will be fine and you are going to get through it."

Attachment and bonding. All riders spoke of deep and meaningful attachment to their horse. As mentioned above, physical contact, touch, and caring for the horse were traits reported by participants that helped build attachment and bond. The participants spoke of perceived reciprocal feelings from the horse. "I was able to put trust in a horse and then I think at some point the horse felt that they could trust me too." Another expressed, "The day I met [my horse] I felt like I had known him my whole life." A participant who had been with the program for several years reported witnessing, "The work that comes out those relationships is really profound, and for the riders, it is very good they see really amazing result."

Riders also spoke of their struggle when their horses were retired from the program. "It was hard to say goodbye. [My horse] had given his heart while he was here and worked hard. We had this relationship, worked together really well, and learned together." When the time came for the horse leave the program, the rider reported feelings of gratitude and hope for not only the horse's future, but also her own.

Nonetheless, not all riders reported feelings of closure. A rider described her experience of when her horse had to leave the program.

> It was like he died and he might as well have because it was just crushing…This horse just knew what to do to make me comfortable…I trusted him with my life and now he's gone…[But] change is part of this program.

The transition to a different horse created difficulties in level of engagement. "I did have a couple of different horses that I worked with and I just wasn't in it. I showed up to all of my classes but I just wasn't into riding and I wasn't into participating."

In response to issues of early terminations, the THR program encouraged the riders to become "less reliant on one horse and more reliant on their abilities to build a relationship." A participant reflected:

> I think [the program] may have been detrimental to some of the riders' suffering because [switching horses] is really hard. So, we are trying to figure out as a program how to [encourage] them that they can build a relationship with any horse and not so much stuck with one horse before we have to change it.

The level of attachment and bond veterans developed towards their horse provided profound experiences of closeness and connection, unlike what they had experienced in other relationships. With that said, the ending of these attachments were also profound, bringing about reactions of grief and loss.

Phenomenon of mirroring. According to Hallberg (2008), mirroring is the "perceived ability of the horse to accurately reflect back to his/her human client a key piece of information regarding the client's functioning that is needed in order to bring about change" (p. 165). All participants referenced this phenomenon throughout their interviews. "Horses allow us to see who we are inside that we don't want other people to see or that we don't even know is there sometimes." A participant expressed:

> I think that working with horses in this way really gives you a better understanding of who you are and how you interact with the world. [The horses] help you see the world differently and it teaches you to be a more methodical, calmer, and authentic.

Other riders commented, "[The horse] knows what you're not saying" and "working with a horse in this capacity allows you to see what it is you're hiding from other people." A participant reported, "You can't lie to your horse because if you do your horse will just tell on you anyway and so you end up with way more [negative horse behaviors] if you aren't being honest with your horse." They continued, "Whether you say it out loud or in your head, if you are having a crappy day you are a lot better off telling your horse 'I am having a crappy day' than you trying to hide it."

To explain how mirroring impacts the horse-human dynamic, a rider described an interaction that she observed when watching two other riders work with the same horse she was working with. She reported:

> The first lady who went out to hold [the horse], she was not too overly excited but he was walking around and not standing still…and not really listening to her. Then, I worked with him and he stood still and acted like he was asleep. Later another girl went out there and he was dancing around and kicking up violently.

The rider went on to explain how the horse mirrored back the attitudes of the different riders that approached him. "The first lady was probably afraid of him and so he was sensing a bit of hesitance so he was probably testing and trying to figure out 'Am I the boss, is she the boss? Who's in charge here?'" Conversely, the last woman had "a lot of anxiety and the way she portrayed that around the horses was to get in their face, get big and loud and to say, 'Okay, I'm in charge.'" The rider explained that this woman's behavior likely caused the horse discomfort because "she was saying one thing

but doing another." The rider went on to reflect on her own behavior with the horse and reported:

> I came in confidently, I held him, I stood there quietly, I didn't have any anxiety within me, I was just there to do my job and he was there to do his job. In that relationship, he sees me as the alpha or the person in charge.

Mirroring also helped with the relationships between the riders and the staff (e.g., volunteers and instructors). Riders reported finding comfort in knowing that the instructors were "not going to come out and say, 'Well you are really anxious today so you should probably calm down.'" Rather "they are going to come over and they are going to say '[Your horse] is really dancing around, what do you think might be going on with him?'" In another way, the instructors addressed what the solider was doing in an indirect and non-confrontational way by noticing how the horse was responding. Riders were given feedback to adjust their body posture, take a breath, relax their shoulders, etc. in order to help the horse feel safe and relaxed as well. "If they can change what they are doing and take some nice big deep breaths, all of a sudden that horse does the same thing and takes a nice big sigh." Thus, the phenomenon of mirroring helped riders to identify and take accountability of their internal and external states. Furthermore, it offered non-confrontational ways for others to address behavioral changes.

Mind-body congruency. Building congruency between the rider's internal processes and external expressions is related to the concept of mirroring. "Once the horse respects you as the leader, they queue off of you." Thus, the participants repeatedly expressed the importance of self-awareness and self-regulation.

> It's the alpha horse's responsibility for the safety of the herd and if that leader gets tensed the whole herd is going to be tensed because they feel like they are in danger. So, once the horse accepts you as the head of the herd, if you are tensed for whatever reason the horse is going to be tense.

All riders reported learning increased awareness of discomfort in their mind and body and how that was expressed through subtle changes in body language. This awareness was also applied to the horses' nonverbal communications. All participants emphasized the need to notice "subtle cues" in order to respond to the horse appropriately and "helping the horse relax." If the horse sensed danger:

> He is going to react accordingly to that. So, if you are trying to clean the hooves, if you are tense about it, he is not going to make himself vulnerable and pull one leg up off the ground when there is danger.

A participant reflected, "When I started coming around horses, I get around them and they are keyed up. They eyes are wild, they are snorting and it took me months to realize it was me making them that way." A veteran described how noticing the horse's body language:

> Taught me to relax and be able to calm down…I don't have to be looking at everything and everywhere, checking the horizon and looking at the tree line and peeking around corners and making sure the stall is cleared before I go through the door…I can pause for a second, reassess, and say, "Hey, I don't have to freak out, I don't have to react."

Another rider commented:

> If you are angry and you are working with your horse and you want to do something different, you have got to figure out how to deal with that anger…You have to figure out how to let it go because otherwise you are not going to get anywhere else in your lesson.

The riders reported being challenged when their mind and body seemed incongruent and indicated that practicing mind-body congruency was one of the most challenging aspects of THR. "I think the most difficult thing was learning that what I am thinking and saying can be two different things." Another rider emphasized, "Ninety

percent of the time, if your horse is not doing what you want it to, it is because you are unconsciously telling him something else."

When congruency occurred between veterans' internal processes and external expressions, the horses responded positivity. Riders described that when they were able to relax, despite their fears, anxiety, frustration, tension etc., the horse noticed this change immediately in the rider and responded accordingly. The "horse is an instant biofeedback machine, so the second that [the riders] actually make that emotional shift their horse is going to say 'Yes, that's right.'" In sum, riders attributed gains in self-awareness and self-regulation to the THR skills that fostered mind-body congruency.

Transferable Skills

Participants repeatedly remarked on how skills learned through THR were transferred to their everyday life. Participants commented that the horsemanship lessons "paralleled to all aspects of your life" in ways that allowed the riders to make their own connections to how each lesson applied to their life and recovery process. These transferrable skills created "ripple effects" in emotional, cognitive, physical, and social domains. These dimensions are further described below.

Emotional domain. Participants commented on various skills learned from THR that were reflective of their emotional functioning. These included feelings of autonomy, self-esteem/confidence, empowerment, and emotional regulation (the increased ability to understand, monitor, and express emotions appropriately). These components are described in more detail in terms of their transferability to emotional functioning in the veterans' lives.

Autonomy. Participants reported that the activity of THR allowed them to gain more independence and self-sufficiency. Autonomy was built through veterans learning to trust and depend on their own knowledge and resources to complete tasks and exercises. A rider expressed, "I am now able to take the weight off of everyone else who was helping me all of these years. Being able to give my kids what they need, being able to help my husband…is an accomplishment." Thus, the gradual process of learning and retaining horsemanship skills gave riders tangible experiences of feeling self-sufficient and self-reliant.

Empowerment. Feelings of empowerment were also repeatedly emphasized. "Before working with horses, I wasn't assertive. I wouldn't let someone know that something they were doing was unacceptable. I would just try to suck it up and tough it out." Another veteran reported, "Horses will walk all over [people] and it's really interesting to see [veterans] finally be able to set the boundary and hold it." Another reported that working with her horse:

> Really helped me stand my own ground with others, to be assertive and just say, "Look. No. I disagree. I am not going to go there or this is just wrong and unacceptable and here is why." Or "The way you are treating me is wrong and I am no longer going to think it is a fault of my own."

Participants attributed increased feelings of assertiveness and ability to set boundaries to the lessons and skills learned through THR.

Self-esteem/confidence. As feelings of autonomy and empowerment built, riders became more confident and self-assured. Building a relationship with a horse was a source of confidence as well as learning and remembering how to interact with it. Being able to prepare the horse for the lessons and riding the horse in the stable seemed reinforce riders' self-esteem. A rider commented, "THR helped me believe in myself

again, rebuild my confidence, and established a piece of mind." Another reported, "It allows me to realize that even though I am not totally healed that I can have confidence in myself and to realize that life is a blessing." Riders also reported feeling an increased ability to manage more responsibilities and a desire to challenge themselves more than they were able to previously.

Emotional regulation. Participants also reported that through THR, they learned "a different way to cope." A participant commented, "There is a therapeutic value that is built into the program" in which the riders learned new ways to manage and understand their emotions and adjust their behaviors. Participants often referred to horses as "naturally having PTSD" and described the horses as anxious, hypervigilant, distrustful, and fearful. "Horses are constantly trying to figure out if a new object or a new site or sound is dangerous and that is precisely the situations you get put in during war." Another compared the similarities between military life and a horse's life. "Just living under the constant stress of what could happen or just always having to be alert for any little thing that can and will try to kill you."

For example, riders learned how to do emergency stops with their horse during situations in which the horse was afraid. Through this lesson, a veteran expressed, "I now know what I need to do to get myself back under control." Another rider reported, "More than anything, it helps with learning how to cope and say, 'Hey, I don't have to be impenetrable, I don't have to be ready to shoot, ready to kill, ready to fight right now.'" Thus, through THR, riders were taught skills, which helped the horse maintain or return to a relaxed state. Through these lessons, the riders learned how to react quickly and calmly to get their horse under control. By doing so, the riders also learned how to do

that for themselves. Riders then connected these lessons to situations in their own personal life, incorporating proactive, rather than reactive responses.

Cognitive domain. Participants also described cognitive improvements during the THR program. Many indicated that because of war stress injuries, their abilities to learn and remember had been compromised. "I have a hard time learning and retaining information so trying to learn something new is a real tough thing." Another expressed that their ability to learn is a "big hindrance…and then you add what has happened to you and it makes it even more of a challenge." To strengthen these cognitive challenges, THR was guided by a curriculum that helped riders learn and remember new skills.

A participant described:

> When riders come into the lobby area, the lesson plan is posted so they can see exactly what they are going to be doing for the day. When they go to their grooming box, that same lesson is also posted up on the wall so they can remember what steps they need to do.

The activity of grooming was used as an example to illustrate how memory skills were reinforced throughout the program. Riders learned five different tools used for grooming and in what order they were used. They needed to remember the purpose of the tool, the direction it was used in, and for what body part of the horse it was used on. Each lesson built on the one before, "so each session, we start adding more, every session has at least one or two additional memory tasks." Riders reported that working on memory problems in "real life situations" helped them remember quicker and easier when compared to "working on flash cards in [physical therapy] office and [occupational therapy] office." Another rider commented, "I realize that I can't remember everything …but the main thing is that THR gives me interest to try to remember as much as I can."

These activities were conducted with the intention of "helping [riders] become more functional and independent." Riders described how being able to remember how to tie the horse to a hitching post and steps to grooming were "confidence boosters." A rider also noted that these types of memory tasks "would not be a big deal to some people, but it's a big deal to me and it is taught in such a process that is always encouraging and reminding you that you can do this." Riders also reported noticing their memory and learning skills developing outside of THR. For instance, riders reporting increased abilities to remember their schedules, keep themselves organized, and felt less forgetful. "I feel proud of myself because a lot of these things I used to forget. I can remember some stuff and it makes me feel good." In sum, as riders began to notice memory and learning improvements through THR, they also experienced a sense of empowerment, pride, and accomplishment.

Physical domain. In addition to emotional and cognitive benefits, participants repeatedly commented on physical improvements in regards to strength, coordination, balance, and range of motion. A fundamental belief underlying therapeutic horse activities is that horseback riding encourages physical recovery (M. Becker, 2002). This has been partially attributed to the similarities between a human's and horse's pelvis. According to Buckley and Raulerson (2013), the pelvises of horses and humans function and move in the same manner and have matching hip movements while walking. Because of these similarities, horseback riding mirrors the movements of walking without placing strain on the legs (Fine, 2006). According to Trotter (2012):

> The horse's three-dimensional movement can provide a combination of sensory and neurological input that can be used to address a variety of disabilities. Currently the horses movement has not been a duplicated by traditional exercise or by exercise machines which typically work on only one with muscle group at a

> time and cannot produce body movements in a natural rhythmic and progressive way. (p. 204)

For instance, sitting upright on a horse necessitates the rider to balance, use good posture, coordinate his movements, improve muscle symmetry, enhance sensory integration, and use their core muscle strength (Buckley & Raulerson, 2013). With or without stirrups, the leg muscles are stretched and core and back muscles are engaged. In return, the rider's flexibility, head and trunk stability, and gross motor coordination improves (Fine, 2006).

As a result of various war stress injuries, riders expressed difficulty engaging in their own physical exercising, resulting in loss of muscle tone, strength, weight gain, and feeling "out of shape." Riders described feeling "stuck" and "embarrassed" by their physical limitations and not being able to do "anything fun anymore." Veterans reported several physical benefits and attributed them to the physical exercise required to work with the horse as well as the innate benefits the horse's gait provided. A participant reported, "the movement of a horse actually mimics the same way that you walk, so just putting someone on a horse and walking them around gives their brain a tremendous amount of corrective gate stimulus."

Riders commented on how "being physically active benefited my quality of life" and helped "strengthen my core muscles." Participants reported feeling more motivated to engage in physical activities through the activity of THR than they would in their physical/occupational therapy offices. A participant described that during her physical therapy appointment, she had limited mobility and range of motion in her arms. During these appointments, she would stop and express that she could not go any further because of the pain. She went on to describe, "but then you realize when you are grooming your

horse that you are brushing your horse and your arm is up here and it doesn't hurt because you just did it and you needed to do it." This motivation was also reflected in a participant's comment that he was willing to "push past" his pain threshold because he was "actually having fun and enjoying what I am doing." Another rider commented on the benefit of being "distracted" from his physical pain and "getting out of your own head and focusing on something else" while working with the horses. Additionally, "I know that every time I have come out here and worked with the horses that, when I leave my pain level is less than when I came." Thus, the physical exercise involved with THR seemed to change veterans' perceptions of pain tolerance and increased range of motion, balance, and muscle strength.

Social domain. The last domain of transferable skills is the social dimension. Participants reported changes in social skills throughout the activity of THR, which were transferable to their everyday life. These skills included verbal and nonverbal forms of communication, changes in roles and responsibilities, and increases in social connection with family and community. These subthemes are explored in more detail below.

Communication. Participants emphasized the strengthening of verbal and non-verbal communication skills through THR. According to the participants, these communication skills were developed through furthering their awareness of body language and learning the differences between active and passive posturing. THR encouraged riders to have "authentic posturing" because "you cannot have passive body posturing and feel aggressive and have your horse actually react positively." Riders transferred these lessons from the horse to interactions with people and learned "this is what I *think* I am saying but this is *really* what I am saying." By noticing incongruencies

between internal thoughts and feelings and external behaviors, riders reported being able to "look in on yourself and say, 'Okay, this is how other people see me and this is how I would like them to see me and this is who I would like to be.'" Riders attributed this awareness to communicating more effectively and honestly through their verbal and nonverbal actions.

Role and responsibility changes. In addition to the changes in communication skills, participants repeatedly referenced role and responsibility changes in their lives. Participants described the phenomenon of a "ripple effect" which represented how their personal recovery impacted their family, work, and social functioning. When describing how THR had been beneficial, a veteran reported, "I am a mother and I have been able to go back to being a mother for my daughters." In support of this statement, another participant indicated, "Not only are we helping these veterans, we are helping their children, we are helping their other relatives." The ripple effect created by their THR involvement, seemed to have positivity influenced the veterans' abilities to reengage in their familial role and responsibilities.

In addition to reinvesting into family responsibilities and roles, riders described changes in their sense of self. "I have not gone back to the person who I was, I am not the same lady who I was before I was deployed. But at least I am not the same person I was when I got back." She continued to explain that even though her war stress injuries had "never gone away, I don't expect them to. But it has gotten so much better. In many ways, I am stronger and I don't allow things or people who used to push me around push me around anymore." Acceptance of this new identity was also reflected in another participants comment. "I know I will never be like I was before. I know that I will never

be healed from this but I feel I can get all I can out of whatever is afforded to me here."

A rider described how working with the horse was like:

> Retraining your mind that you have gone places, you have seen things that you can't change and you are never going to be the same person you were before you saw that. But this is a new normal and this is how we are going to deal with it and this is how we are going to carry on from here. I think that working with the horses is a lot like that and I think it starts to build within and gives yourself hope.

The riders connected this area of personal growth and self-acceptance to their work with horses. These aspects also seemed to expand to the riders' empathy and compassion for other people who may be struggling. For instance, a rider indicated, "I am happy with the different person I have become. I am more empathetic and understanding and I recognize other people when they are in trouble." Another commented, "I think the big thing for me is realizing that the horses all react to stuff differently and then realizing that people react to stuff differently too." Furthermore, another participant expressed, "I feel I am a lot more mature. If I am going to try to extend myself or help someone else, I am a lot more understanding."

In additional to changes in family and other relational dynamics, riders also spoke to changes within their employment experiences.

> A lot of people know me as this other person who was really good at her job, who really knew what she was doing and she didn't need help from anybody. I didn't know how to not be that person anymore and I didn't know how to talk to all these people in the community and say, "I'm not that person anymore.

She went on to describe how facing her fears in the presence of horses helped her to realize that she "doesn't have to be that person anymore." Another rider reported changes in his willingness to step back into a leadership role. "I'm actually willing to officially be a leader because I got so tired of being the leader in the military I didn't want to be in charge of anybody anymore…[THR] is pulling me out of my shell." In

sum, the participants attributed THR lessons to assisting them with reintegrating themselves back into civilian life through having compassion for themselves and others.

Rebuilding connection. Another repeated social theme was participants' increased connection to their families and community through their involvement in THR. Many riders reported that THR allowed and encouraged family participation. For instance, a rider indicated, "Whenever my wife gets a chance, she comes out here and she volunteers." Others commented on the benefits of having their children and/or partners be involved with THR, which assisted them in their recovery within themselves and their families. A rider expressed, "It's beneficial to [veterans] to have the families involved as well because the family has to live with that individual that is going through some of these things." Riders described that the involvement of their family members as "stress relieving" and decreased feelings of isolation.

Nonetheless, participants also described feeling isolated because their families and friends lived in different regions. A participant expressed, "[Veterans] are not only having to deal alone with the injuries and the healing that they need to do, we also have them separated from their families." To assist with this disconnect and separation, riders indicated the benefits of using photographs and videos posted on social media. This exposure helped them connect with their loved ones and build positive communication. For instance, a participant described how talking about pictures of himself with his horse created a more dynamic and positive conversation. A participant commented, "Talking about the horse and their relationship with the horse helps them open up, feel more at ease, and comfortable."

This social connection was also carried over into other social domains including their engagement with medical and mental health professionals. Participants described difficulties in connecting and establishing relationships with mental health providers. "If you know anything about military people, it is hard for us to let people into our circle. You don't just get to be a part of my life, you have to earn your way in." This process of building trust and rapport was mirrored in the ways in which veterans earned the horses' trust.

> So we are seeing an absolutely amazing benefit from having pictures of their horses and even making sure that other people that are involved in helping this person heal know who that horse is so that they can actually incorporate that into helping that person.

When mental health providers expressed interest in the veterans' THR involvement, the participants reported that they were more able to open up, communicate, and work with the medical or mental health professional. Thus, the professional's expressed interest in the veteran's horse seemed to be an important point of connection.

Motivation

The final theme addresses motivation. Riders, instructors, and volunteers repeatedly expressed witnessing or experiencing shifts in motivation. Participants spoke of this motivation in two ways. Firstly, it provided participants with a reason and purpose to live and secondly, it motivated participants to continue in their healing process. Both of these subthemes are described in more detail.

Reason and purpose to live. Several participants reported that THR "saves lives." For instance, a participant expressed, "[THR] saved my life, it gave me purpose in my life again. It's why am I still here." Another reported:

> THR is the only reason I'm alive. I had contemplated suicide. I had stopped living. I was trapped in my house. I couldn't function on a daily basis. This is everything. It's the only reason I'm still a mom. I'm still married. I'm still functioning. I'm still alive.

A participant recounted the story of a former rider. She described that the rider was new to the program and when an instructor followed-up with him to see if he was planning to come to the second session, the rider had been planning to attempt suicide the day of the lesson. "He didn't want to tell them me was not coming back, so he just decided to postpone his suicide for another week. And he has been postponing his suicide for three years." A participant abridged:

> There were days that I didn't see a point to the next day. It was just going to be the same like the day before and it was all going to be bad. You can't do it without programs like this. It's all because of one day that I decided to come down here and walk one foot into the door. Otherwise, to be honest, I probably would not be alive right now. I can name multiple people in this organization alone that have had their lives saved by this organization.

In addition to THR being a "life saver," participants reported that THR gave them a greater sense of purpose.

> When I don't have something going on, I tend to start thinking about the reasons that I have the PTSD and anxiety. If I don't have something to keep doing then I start spinning and then I start spiraling and things go bad. [THR] gives [veterans] an outlet, it gives us a stress reliever, it gives us a shoulder to cry on, it gives us a place to be ourselves, a reason to wake up.

A rider described enjoying how the THR staff called and asked, "Hey, your horse misses you, or you are coming out to see it this week or can you come out and clean stalls because I need help?" Riders described these experiences as giving them a reason to live, that someone was depending on them, and that their horse needed them. Another participant recounted, "Many riders decide to go back to school and follow that heart's desire." This sense of purpose was also demonstrated in riders' motivation to become an

active participant in their recovery process. "I'm challenging myself and I'm trying to make myself better. I have quit drinking, I work out, I've changed my whole lifestyle and thought patterns. Doing stuff like this is helping."

Continued treatment and recovery. In addition to having a sense of purpose and reason to live, riders reported feeling motivated to continue their treatment and recovery process. A veteran described, "My recovery is definitely an on-going process. It is an on-going process dealing with all the crap." One way in which this continued care manifested was in riders' decisions to enroll in more classes and/or become volunteers. "I've been coming back for almost three years now and I believe it is going to continue to be rewarding to me." Another rider expressed, "I'm challenging my life right now in a good way so I just want that to continue." In addition to continuing to engage in THR programs, participants also indicated wanting to continue "working with horses beyond what they teach here" by owning their own horse. "I have actually seen quite a few of the riders get their own horses [and] were using those horses as their coping mechanisms for getting along in the world."

Participants also expressed motivation to "give back" to other military personnel who may be struggling. Riders reported, "directly helping other fellow veterans is the core of [THR]" and "being a blessing to other people has been a healing for myself." Another reported, "[THR] gives me a purpose and gives me something to do. I want to help fellow veterans, and even other retirees, and people who are all my brother and sister." Being able to reciprocate and share their recovery with others was also reported. "I am giving back and I am getting something from it at the same time." Another rider explained that there is an "overwhelming number of veterans that need help and if I can

learn some things and get associated with people that have THR programs set up then maybe I can help too. This is where my heart is."

Discussion

The results of this study suggest preliminary efficacy of THR with veterans. The four primary themes described the activity of THR with veterans and provided evidence of its therapeutic value reflected in community, relationship, transferable skills, and motivation. The following text discusses the primary themes and draws deeper connections between THR and veterans' recovery processes from war stress injuries. First, the importance of community is highlighted through two main characteristics: non-clinical environments and sense of commonality. Second, the human-horse relationship is discussed by its ability to initiate trust and safety at the beginning stages of trauma recovery in order to foster greater self-awareness and confidence. Third, new perspectives on recovery are explored through metaphorical connections and increased compassion for self and others. Lastly, the role of motivation to reinvest in life is considered by becoming more involved in one's life and finding enjoyment and purpose.

The Importance of Community and Commonality

The importance of community was reflected in the veterans' preferences for their recovery to take place within a non-clinical environment, surrounded by others with common experiences. The significance of a non-clinical environment echoes the participants' experiences of feeling stigmatized by the various traditional therapy settings and interventions for war stress injuries. The following two sections discuss how the outdoor, non-clinical, environment played a substantial role in the veterans' experiences of commonality and consequently, their recovery process.

Non-clinical environment. THR was described as "different" from and preferable to traditional therapy. This feeling of difference was based on veterans'

experiences of safety and trust with their horse and the community, reduced feelings of stigma, and decreased dependence on and pressure to verbally communicate. Veterans expressed that, because of the non-clinical environment, THR felt like a less stigmatizing alternative. Furthermore, veterans' defensiveness and tentativeness to human interactions were not obstacles within THR as most of their interactions were with horses and therefore, did not feel judged by their past experiences or current struggles.

It is well recognized within the literature that one of the first steps in trauma work is developing a sense of safety. Moving the recovery process to the outdoors seemed to decrease the implicit expectations for the veteran to be transparent and articulate about their trauma and thereby allowing feelings of safety and trust to emerge. Within a THR setting, "an environment [is] created where the client begins to feel comfortable in speaking directly and symbolically about the meanings of what they are experiencing through the interactions with the horses" (Trotter, 2012, p. 186). Moreover, since it is experientially based, military members may be more accustomed to regular outdoor activity and may "choose the challenge of working with horses in a natural (outdoor) environment rather than office therapy" (Abrams, 2013, p. 143). Additionally, since THR teaches horsemanship skills in a regimented, task-orientated way, veterans may experience a higher sense of safety and control, as the program and expectations are clear and predictable. This also seemed to contribute to the veterans' willingness to engage and participate in their recovery; a drastically different experience when compared to their previous efforts in traditional mental health settings.

Similar to Gilling's (2013) study, participants in this study commented on the difference between traditional therapies and therapeutic horse activities. "Working out

problems with the help of a horse is less stigmatizing than sitting in front of a therapist in an office" (Abrams, 2013, p. 143). As described in earlier chapters, stigma was a common experience and powerful deterrent for veterans when seeking mental health services (Hoge et al., 2014; Gibbons et al., 2014; Zinzow et al., 2012). Veterans reported reservations regarding interacting with mental health professionals based on previous experiences of stigmatization within mental health settings. Participants expressed feeling guarded and reluctant, distrusting the therapist and stigmatized by the questioning process. The perceived and actual stigmatizing experiences were common obstacles for veterans to achieve therapeutic gain from traditional psychotherapeutic interventions. Several participants described feeling resistant or disengaged in traditional therapy inventions and environments within and outside of the VA.

Studies attempting to determine the efficacy of EBPs for combat-related PTSD demonstrate a pattern of the military population being "non-respondent" to traditional treatment. The current findings suggest that veterans were more comfortable and willing to participate in THR because of the reduced feelings of stigma, in part due to the actual environment in which their recovery occurred. Veterans may have also been more comfortable with THR approaches because of the reduced dependence on verbal communication. Veterans may be hesitant or incapable of articulating their traumatic experiences (Gibbons et al., 2014). Therefore, THR provided an alternative to traditional "talk therapy" for those who may have decreased cognitive abilities or difficulties verbalizing or articulating their trauma (M. Becker, 2002). Furthermore, the data suggested that once veterans started the THR program, they were more likely to continue

and remain engaged, even after their eight-week program ended. This implies that THR may produce higher retention outcomes and therefore, fewer dropouts.

These views are also reflected in previous research. As J. R. Graham (2007) proposed, participating in a therapeutic horse program was effective for those who had not benefited from traditional forms of therapy. The veterans' perceptions of traditional therapy versus THR were mirrored in Abrams' (2013) study, which assessed the perceptions of five EFP/EAP therapists who used therapeutic horse activities with veterans. In Abrams' study, the therapists' recognized, "There's a lot of stigma to coming to an office psychotherapy session…So, if we can be outside and be engaged doing something and they can relate that to everyday life, it's just much more effective" (p. 143). Thus, THR seemed to be a less stigmatizing alternative for those who do not benefit from traditional psychotherapeutic interventions.

In addition to the exclusion of a clinical atmosphere, veterans attributed higher levels of engagement and reduced experiences of stigma because of the inclusion of horses. Lefkowitz et al. (2005) described that animals have the ability to reduce a person's reluctance to begin treatment. This is particularly critical to consider for people who are mandated or have strong oppositions to treatment. Without obligations, stereotypes, or stigma, veterans may find that animals are non-judgmental allies in their recovery process **(**Campbell, 2008). This may also encourage veterans to experience their feelings more fully. Emotions, such as fear and despair, are often unexpressed due to the concern that one may lose control, be judged, or the pain of feeling such emotions would be intolerable. Based on the current findings, horses seemed to provide a way for veterans to process and express these difficult feelings instead of restraining or hiding

them. Veterans reported not feeling pressured to "share their story about what happened" like they would in traditional settings. Rather, they were able to share their stories with their horse at their own pace. For some, this eventually led them to willingly share their story with other veterans and/or staff. Similarly, horses seemed to help decrease feelings of isolation and loneliness and offer a place where a veteran could feel understood and accepted (similar results found in Kawamura et al., 2007, and Perlman et al., 2010).

Commonality. In part due to the non-judgmental and non-clinical environment in which the veterans' trauma-recovery took place, the data also reflected the importance of commonality. Being part of a community in which commonality was present was repeatedly reflected in the veterans' experience of THR. Herman (1997) defined commonality with other people as belonging to a community and "having a public role, being part of that which is universal. It means having a feeling of familiarity, of being known, of communion. It means taking part in the customary, the commonplace, the ordinary, and the everyday" (p. 236). Veterans described the importance of having commonality in order to rebuild and reintegrate into a cohesive community. In the end, veterans felt a greater connection to others through validating and normalizing experiences of belongingness and purpose.

McCormick and McCormick (1997) described, there are certain characteristics shared by horses and people including the "need for strong bonding with a well-defined community" (p. 42). Building a cohesive community restores feelings of belonging, connection, familiarity, and acceptance. According to Herman (1997):

> Traumatic events destroy the sustaining bonds between individual and community. Those who have survived learn that their sense of self, of worth, of humanity, depends upon a feeling of connection to others. The solidarity of a group provides the strongest protection against terror and despair, and the

> strongest antidote to traumatic experience. Trauma isolates; the group re-creates a sense of belonging. (p. 214)

The sense of belonging experienced in THR programs was comparable to the camaraderie experienced within group therapy. In more traditional group therapy settings, veterans can hear from other military personnel who are experiencing similar issues, share their own story, and increase confidence by assisting others. Yet, veterans may be hesitant or embarrassed to vocalize their experience because of the emotional weight it may place on others or fear that they may be stigmatized, rejected, or invalidated. Within THR programs, veterans are not pressured to share their experience, which reduces the distress some may feel when within group therapy.

Another advantage THR has over group therapy and THR was the integration of and engagement with horses and the horse community. Participants described a strong sense of family and friendship, which was built through their connection to the THR community. This experience of belonging and connection seemed to be an inherent aspect of horse communities. As Kendall, Maujean, Pepping, and Wright (2014) described:

> Therapeutic-riding centers usually offer the opportunity for riders to mix with a range of other riders and volunteers, all of whom share a passion for horses. In this context, the horse becomes a facilitator of inclusion and communication. Horses become a topic for spontaneous conversation, allowing people to express themselves to an interested audience without fear of rejection. Horsemanship necessitates constant interaction between a team of people and a horse. To safely participate in horse-related activities, the team must communicate both verbally and non-verbally at all times. Indeed, it has been suggested that the horse can build a "bridge" between riders, volunteer helpers, and the coach or therapist. (p. 14)

Commonality also enabled veterans to rebuild and re-experience what it is like to connect with others. One way in which veterans built connection to the community was through having a public role. For instance, having a responsibility as either a rider or

volunteer within the community seemed to help veterans connect to a greater sense of belongingness and purpose. Feeling depended upon, looked to for advice and help, and experiencing a sense of belonging all seemed to assist veterans with their recovery process. The bi-directional peer support offered opportunities for veterans to share information, provide encouragement and support, assist others with skill building, and maintain social connection. When helping each other with the horses, veterans heard from other military personnel who had similar experiences, successes, and challenges, which was advantageous in the recovery process as it provided a validating and normalizing experience. This mutually rewarding, and bi-directional form of group/community support also seemed to promote a collective sense of empowerment.

The Horse and Human Relationship

In addition to the relationships built within the community, the human-horse relationships described by the participants in this study were profound and complex. This is especially critical to note given that research has demonstrated that the quality of the therapeutic relationship is associated with a better outcome to therapy (Sockalingam et al., 2008). Being able to touch, "join-up," and physically and emotionally interact with the horses seemed to be significant experiences for the veterans. These experiences helped establish an accepting and trusting relationship, comparable to the client-therapist alliance, which fostered the recovery process (Yorke et al., 2008). Having developed an attachment with the horse seemed to allow for greater awareness of emotions, thoughts, and behaviors. Thus, being in the presence of a horse pushed veterans to notice, monitor, and change incongruencies between their internal processes and external expressions through the experience of reflective feedback, or mirroring. Lastly, the mastery of

horsemanship tasks also seemed to strengthen and maintain this relationship and allowed the veterans to experience feelings of empowerment, accomplishment, confidence, and personal-growth. These relational aspects are described in more detail below.

The relationship as a starting place. As an initial step, recovering from trauma necessitates the restoration of consistent and caring experiences of safety and trust (Herman, 1997). Garland (2012) found that a "horse can help with that first step of connection: someone who does not trust humans may be much more likely to trust a horse first" (p. 41). Garland goes on to describe:

> A horse may be the first being a survivor trusts again, and a relationship with a horse may provide the evidence that a loving connection is possible. A bond with a horse has the potential for hope, love, and connection to sustain a survivor in the hard work of trauma recovery. (p. 48)

This may be especially pertinent given the veterans' feedback and experiences regarding the frustrations, stigma, and disappointments regarding traditional methods of counseling. Bonding with a horse, although intimidating in size and mass, may be less threatening than bonding with and trusting a therapist. This may be due in part because, "horses do not appear to make judgments in the same manner that humans do, we consider them to be 'nonjudgmental,' and feel safe from ridicule while in their presence…[which] leads humans to assume that horses are compassionate and empathetic" (Hallberg, 2008, p. 137). Whether this relationship is developed through touch, grooming, leading, round penning, or riding, the connection is experienced as "magical" as veterans walked away feeling as if something enigmatic had taken place.

According to Carl Rogers (1961), the ability to convey and provide "therapeutic presence" is through attentiveness, relational connection, openness, increased awareness, and focus. He theorized that this type of presence allowed the client to feel safe and

open. Research regarding the therapeutic alliance indicates that the quality of this relationship is the best predictor of therapeutic outcome and offers opportunities for corrective emotional experiences (Wampold, 2001). This relationship between client and therapist is described as trusting, warm, collaborative, respectful, and accepting. Establishing and maintaining this bond has been suggested to occur through engagement, attachment, and task (Bowlby & Ainsworth, 2013). These components and characteristics of the client-therapist alliance are reflective in the research and literature assessing the human-animal bond (e.g., Lefkowitz et al., 2005; Nagasawa et al., 2009).

Relationships with animals have been described as safe, loyal, trusting, non-judgmental, and open, similar to the goals and hopes for the client-therapist alliance. Within the therapeutic context, research has indicated that the presence of an animal helps facilitate feelings of safety and trust (Frewin & Gardiner, 2005). Thus, having an animal present during therapy may influence the client's experience of therapeutic change. Specific to trauma recovery, it appears the presence of an animal is beneficial for those coping with trauma as it relieves distressing symptoms, induces relaxation, and helps clients stay in the present moment (Matuszek, 2010). As a veteran commented, "I can have the worst day ever and come here and it's just okay, it's whatever it was is gone, whatever is bothering me is done."

Within the context of THR, the alliance is not built between the client and therapist but rather between the rider and horse. By nature, horses are cooperative, patient, and receptive to peoples' emotions (Hallberg, 2008). They are sensitive to subtle body language and will respond accordingly. Thus, riders must build self-awareness and be aware of their non-verbal communications. This helps to build internal congruency

and authenticity of the rider. As the relationship builds, riders often report experiencing unconditional positive regard from the horse (e.g., Bizub et al., 2003; Burgon, 2003). This provides a unique and therapeutic context for riders to experience personal growth and recovery.

This horse-human bond has been reported to be therapeutic by many scholars and researchers (e.g., Fine, 2006; Netting, Wilson, & New, 1987) as horses are gentle, sensitive, and insightful because they have an ability to sense other peoples' emotions (Buckley & Raulerson, 2013). Yorke et al. (2008) provided an in-depth assessment of the relational dynamics between a horse and persons engaged in trauma recovery. Yorke et al. described four main components of this unique relationship including the intimacy/nurturing bond, identity bond, partnership bond, and utility bond; each playing a significant role in the persons' recovery process. Abrams (2013) also described human-horse relationship in terms of building trust and emotionally safety, communicating nonverbally, and experiencing the horse as an attachment figure and co-therapist. Given these themes, it can be seen how the human-horse relationship is reflective in the client-therapist relationship.

Touch is a unique characteristic that sets the therapeutic relationship with horses apart from one with a mental health provider. Within the realm of AAI, clients can give and receive reciprocated physical affection in a non-threatening and safe way. As Trotter (2012) noted, touch plays a crucial role in the development of a trusting relationship between horse and rider. Garland (2012) reported that horses provide an "intimate physical connection…that therapists cannot supply, which may be a factor in perhaps the biggest benefit of all when horses are brought into therapy: a connection with a horse

allows one to experience the feeling of love" (p. 45). For those recovering from traumatic experiences, affectionate touch may be a fundamental experience veterans are lacking.

A relationship with a horse is unlike a relationship with other domesticated animals. A horse is a prey animal in which there primary goal is to maintain safety and survival (Trotter, 2012). They are constantly aware of all of their senses, vigilant of their surroundings. The herd provides safety and comfort, all within a strict social hierarchy. The horse's unique nature as a prey animal allows them to be highly attuned and sensitive to the physical and emotional changes of people. They easily sense and react to physical and emotional shifts with playfulness, displeasure, contentment, anger, curiosity, willingness, or fear (Trotter, 2012).

> Among domesticated animals selected for traits humans favor, horses have retained a strong component of their original wild nature. Because they are not so eager to please as domesticated dogs, they're less labile and more strong-willed… Their imposing size, tremendous strength and keen intuition require that one approach them with respect, vigilance and a great deal of sensitivity. Once a good relationship is established with a horse, the interactions are exhilarating and liberating. (McCormick & McCormick, 1997, p. xxix)

At first glance, horses may seem unpredictable, irritable, and potentially dangerous. New riders must overcome their fear and intimidation of such a large animal. Most veterans entering into the THR program had limited exposure to working with horses. Thus, "learning how to be in the presence of a creature so massive…is truly an amazing process" (Hallberg, 2008, p. 199). A rider described that as she became more familiar with the nature of the horse, she realized that even though "people call them unpredictable animals, they are so transparent, they don't hide their feelings, and they don't lie."

In sum, this study's findings demonstrate veterans' ability to establish meaningful, yet complex, relationships with their horse, which creates openings for healing opportunities to surface. The veterans in this program seemed to have found that "bonding with horses touches that which is most deeply human within themselves and helps them build bridges of trust, first of the horse, then with themselves, and with others" (McCormick& McCormick, 1997, p. xix). As Rector (2005) described:

> Befriending a large prey species, such as a horse, learning to work easily and comfortably around and with it, promotes the development of personal power. Authentically empowered people find it easy to live in balance, harmony, and peace with themselves and environment and others. (p. 28)

Thus, the bond between horses and people assisted riders in building insight and understanding of themselves and greater awareness of their challenges (Tidmarch, 2005). "This special bond helps warriors to work through difficult issues. This can build confidence and change their outlook on life. In short, it can help bring about healing" (Buckley & Raulerson, 2013, p. 211).

Awareness and honesty. In order to develop a trusting relationship with the horse, veterans must be aware of their internal states and base their interactions on honesty and transparency. Learning how to notice discrepancies between thoughts, emotions, and external expression was a necessary component to building and maintaining a safe and trusting horse-human relationship (Hallberg, 2008; Trotter, 2012). As Rector (2005) described, "The horse is not concerned with judging the content of our thoughts, feelings, or attitudes. The horse simply wants us to be aware of what it is we are thinking and feeling" (p. 51). This awareness and honest communication was built through learning how to nonverbally interact with horses and build congruency between

thoughts, emotions, and behaviors. These skills were facilitated through information horses would provide to veterans through the phenomenon of mirroring.

Veterans must communicate effectively with their horse in order to move through the THR lessons. According to Abrams (2013), "The importance of learning to read the horse's body language was a universal message among [veterans] in order to establish communication with the horse while also increasing self-confidence and trust" (p. 129). Parelli and Kadash (1993) asserted that 80% of horse communication is nonverbal and are therefore highly attuned to the nonverbal communications of humans. "If there is a discrepancy in your actions and attitude, horses will respond immediately and let you know it will not be tolerated in their arena" (Trotter, 2012, p. 184–185).

As mentioned, horses become irritable when riders are unaware of their emotional and/or physical states. A veteran noted, "Being more self-aware of what you are doing and what your body is doing helps the horse feel safe." As a large and powerful animal, their displeasure creates unique safety requirements. Hallberg (2008) described:

> When working with the horse if we do not learn how to stay connected and aware of our own bodies, and learn how to express the feelings and thoughts that arise within our bodies, we may be placing ourselves in jeopardy of getting injured. Horses generally choose not to tolerate incongruence. (p. 161)

Veterans purported that one of the most challenging tasks of the THR program was building congruency between their thoughts, emotions, and behaviors. Research has demonstrated that increasing self-awareness and congruency are common outcomes of therapeutic horse activities (Bizub et al., 2003; J. R. Graham, 2007; Thelle, 2010). Findings in this study indicate similar outcomes as the veterans reported increased abilities in noticing and monitoring both emotional and physiological states. Whether that was anger, fear, anxiety, sadness, or panic, they learned to how to notice, identify,

and monitor their internal states. Furthermore, veterans spoke to their increased ability to accept these difficult emotions, rather than hide or repress them. They attributed their ability to monitor their internal states to their interactions and relationships with the horses. Trotter (2012) theorized that horses:

> Are much more effective at confronting behaviors and attitudes than people are, partly because of their honesty but also because of their ability to observe and respond to nonverbal communication. The horse provides the vehicle for the projection of the client's unconscious worries or fears. This provides the client the opportunity to look at what works, what doesn't work, and whose needs are being met while offering the client the opportunity to take responsibility for recognizing how personal actions affect others. (p. 9)

Projection and transference are innate processes that occur while working with the horse without the interpersonal elements and interferences that occur in more traditional settings (Klontz et al., 2007). This enables horses to become catalysts for issues to become more apparent. These issues can be processed using metaphors, which may seem less confrontational.

Projection also played a role in the phenomenon of mirroring. This synchronizing theory has been referred to as biofeedback or reflective feedback by different authors and is a way in which riders learn how to "observe [their] own communication style" (Hallberg, 2008, p. 171). According to Rector (2005), "Work with horses provides a clear precise mirror of our inner thoughts, feelings, attitudes, and beliefs" (p. 51). For instance, a veteran may have the task to clean out the horse's hooves. Horses can by stubborn and will not pick up their hooves if they do not trust the rider. Thus, if a veteran is behaving aggressively or timidly in their attempts, the horse will respond accordingly. It is through exercises such as this where veterans start to see how their feelings, thoughts, and behaviors impact how the horse interactions with them. In order to get the

horse to respond to a rider's request, they must create a change within themselves (Trotter, Chandler, Goodwin-Bond, & Casey, 2008). When the veterans make these changes (e.g., modifies attitude, gestures, posture), the horses cooperate and provide immediate feedback by mirroring that shift (Bauducco, 2012; Hallberg, 2008; Trotter, 2012). Thus, increased awareness and self-acceptance was facilitated through the horse's ability to mirror the conscious or unconscious affective states of the rider.

> In essence, horses give us living biofeedback because they show externally our inner processes…Horses detect involuntary physical reactions in us that result from our own unconscious fears and anxieties…When a rider is nervous or twitching uncomfortably, the horse visibly responds in kind. Likewise a rider who is self-assured, confident, and relaxed will have a confident, relaxed horse. (McCormick & McCormick, 1997, p. 67)

The reaction between horses and humans vary dramatically and are influenced by individual differences, including the ways in which these interactions are interpreted. The hypothesis of a synchronizing response may not be the case as humans have different limits than horses. However, proponents of this synchronizing theory suggest that horses have the ability to reflect back their direct experiences and can sense their rider's emotional state (Buckley & Raulerson, 2013). In other words, "whatever they feel on the inside is what they manifest on the outside" (p. 110). If the rider is trying to get the horse to do something different, she must initially alter how she is behaving towards the horse. Thus, to get the horse to be responsive, relaxed, and trust the rider, the veteran needs to embody those characteristics (Mandrell, 2006). Similarly, if the veteran is anxious or frustrated, the horse will also mirror those emotions. As Buckley and Raulerson (2013) described:

> If a warrior appears to be frustrated, trying too hard to get the exercise done, or is even angry, the horse will pull back, also showing signs of frustration. It may even leave the area and refuse to work with the warrior. This, in turn, causes the

> warrior to rethink his approach and to try a new tactic. If the horse does not cooperate, a single warrior, no matter how strong, will not be able to force the animal to perform. (p. 212)

Thus, working with a horse challenges the veteran to convey and experience honest emotions in order to build and sustain a relationship with his or her horse. Another example of this mirroring phenomenon was when a veteran described initial confusion as to why the horses would become tense, uncomfortable, and at times, run from him. "The horses are quick to reflect discomfort when there is a lack of concurrency and grow resistive and agitated when it reads the rider is unaware of what you're truly feeling inside and thinking unconsciously" (Rector, 2005, p. 28). He expressed that he initially was not aware of his anger but eventually could see it represented in the snorting, prancing, obstinate display of the horses. He realized that it was him causing the horses to behave in such a way and turned his attention to resolving his own anger. As he made efforts to move himself into a calmer place, the horses responded and became more relaxed. He also noticed that his angry was preventing him from communicating effectively with the people in his life. His firm posture and hyper-vigilant expression put others on edge. He worked to bring harmony within himself as a way to convey safety and trust to others.

As this rider experienced, the size and presence of a horse require veterans to be physically, emotionally, and mentally aware which leads to greater mood sensitivity and self-awareness (McCormick & McCormick, 1997). Overall, findings in this study suggest that riders learned how to become more self-aware and honest with their feelings and experiences. Veterans credited their horses with this newfound awareness and skill in monitoring and quieting their internal experiences. Furthermore, the phenomenon of

mirroring encouraged instantaneous solutions to problems which, when practiced regularly, allowed veterans to develop stronger and more successful problem solving abilities. Through this process, veterans experienced a decrease in incongruent emotional intensities and learned useful ways for coping with war stress injuries.

Mastery of new skills. Building a trusting and safe relationship with the horse, while fostering self-awareness and communicating honestly with themselves and the horses, significantly influenced the veterans' success and mastery of horsemanship skills. The data suggests that riders experienced increases in confidence, self-worth, and autonomy through the mastery of horsemanship skills. It seemed that the horse-human relationship grew and strengthened through the introduction, practice, and mastery of these skills. Garland (2012) contented that for those recovering from trauma, mastering horsemanship skills is of clinical significance. Thus, the restoration of trauma recovery for veterans was also influenced by the provision of self-esteem, confidence, and self-efficacy through the mastery of horsemanship skills (Regehr, Hill, & Glancy, 2000).

Confidence and self-esteem are commonly reported experiences within the literature regarding therapeutic horse activities and are the two most researched factors within the field (Bizub et al., 2003; Corring et al., 2011; Hallberg, 2008; Meinersmann et al., 2008; Thelle, 2010). In this study, riders were taught horse health care and nutrition, riding, handling, grooming, and cleaning. These skills were learned in a stepwise manner, starting with basic lessons on how to approach and touch a horse to more complex tasks. Within each skill set, riders gained greater understanding of how to work and interact with their horse. A newfound sense of accomplishment and competence developed out of these lessons and interactions. As reflected in Abrams' (2013) study,

"all participants spoke of the importance of Veterans learning to interact and communicate with such a large animal in order to gain understanding and confidence in that relationship" (p. 127).

After sustaining a war stress injury, veterans may lack confidence and self-esteem leading them to question their ability to succeed. According to Hallberg (2008), "When faced with the task of getting to know and safely work around such a huge beast, [veterans] may seriously question their potential for success" (p. 199). However, once riders are taught the appropriate handling skills and techniques, "the individual is able to face an obstacle that might otherwise have stopped them in their very tracks, and overcome their fears, discomfort and self-doubt to have a successful and deeply meaningful exchange" (p. 199).

Previous studies reported cognitive benefits of therapeutic horse activities among diverse populations including improvements in memory, spatial awareness, impulse modification, listening, attention, and verbal skills (e.g., Mackinnon, Noh, Lariviere, MacPhail, Allen, & Laliberte, 1995). In the current study, participants reported that with each new skill they learned, they experienced increased feelings of confidence and autonomy. Remembering how to complete the tasks, in what order, and with what material assisted them in recognizing their strengths and abilities. For instance, the riders with cognitive challenges reported that learning how to groom the horse reinforced organizational, memory, and sequential learning skills. Additionally, working with a horse demands the rider's attention and concentration. Riders must listen carefully to the instructor, stay engaged, and follow directions. Various interventions can further

emphasize cognitive abilities. For instance, riders much remember how to groom and handle the horse in a specific sequence, thus increasing working and long-term memory.

Furthermore, while listening and learning the horsemanship skills, veterans are given a new focus. Their attention is on the horse, rather than their symptoms and injury. Therapeutic horse activities require the individual to be in the present moment. The size and power for the horse demands this type of "here-and-now" attention. Thus, the rider's focus is in the present and is not asked to reflect on past traumas or experiences.

As mastery of skills grew, veterans became accomplished enough to ride and take their horses on local trails. During these outings, they spoke with other riders they met along the path. These exchanges helped them realize that they share common interests and can connect with others. Eventually, veterans began to identify themselves as more than just someone with a war stress injury. Subsequently, riders learned to believe in themselves once again, to rely on their abilities, and no longer see the changes created by war stress injuries as weaknesses or deficits.

Overall, data demonstrated that riders experienced success and accomplishment through THR activities which can be "empowering because if [they] can gain the cooperation of a thousand-pound horse, then smaller life challenges do not seem quite so daunting after all; thus allowing clients to see other life problems as more manageable" (Trotter et al., 2008, p. 265). Yorke et al. (2008) suggests that these emotional and psychological changes are especially beneficial for those recovering from trauma. Hallberg (2008) summarized how mastery of horsemanship skills leads to experiences of confidence and empowerment.

> When students learn how to master the challenges involved in the art of good horsemanship, they begin to recognize their own unique strengths, talents, and

> gifts. Many who come to [therapeutic horse programs] have no concept of what they do well, what their strengths and talents may be. Rather, they have been inundated with all the things that they do wrong, and how they negatively impact the world around them. They might be in relationships that do not foster or allow for their own exploration of passions and gifts, and over time, they may have come to doubt their ability to grow. When they come into contact with the horses and begin gaining skills, their sense of self, their self-image, and their level of self-esteem and may begin to change. They realize other talents and skills that they did not know they had, and they begin to take a more active role in their lives, feeling better equipped to do so. (pp. 199–200)

Thus, the sense of competence, self-esteem, confidence, and self-efficacy were developed and experienced through gaining mastery in horsemanship skills including grooming, cleaning, leading, mounting, and riding. Furthermore, data suggested that these experiences are transferred from outside of the horse arena to their everyday lives, as veterans were able to apply these lessons and skills to other areas of their life (Burgon, 2011). These lessons assisted veterans with drawing metaphorical connections to their recovery process.

New Perspectives on Recovery Through Transferable Skills

The lessons presented to the veterans concerning the mastery of horsemanship skills paralleled common life challenges with regards to emotional, cognitive, physical, and social aspects of life. Trotter (2012) described, "When fear is mastered and skill is increased, working with a horse can provide a great sense of accomplishment and confidence in the ability to handle situations outside of the barn" (p. 203). This statement was reflected in ways in which veterans considered how the horsemanship lessons generalized to their life and data suggested that these parallels assisted veteran in their recovery process. Below describes the new perspectives veterans gained through the skills and lessons taught through THR. These new perspectives were developed from metaphorical connections to veterans' recovery processes.

Research regarding therapeutic horse activities confirms that metaphors are an important part of this approach (e.g., Abrams, 2013; Karol, 2007). Metaphorical connections between THR and the veterans' lives were present throughout the interviews and observations. The lessons in THR were not directly aimed to create a particular change in symptoms of war stress injuries but rather provide an opportunity to learn and consider how horsemanship skills could be transferable to intra and interpersonal interactions. At times, these exercises closely resembled similar situations the veterans faced within their communities, families, or internally. "The drills are a representation of what is happening in their lives now" and act as a metaphor of deeper significance (Buckley & Raulerson, 2013, p. 211). Furthermore, therapeutic horse activities' techniques and interventions "create a metaphorical relationship between horse and human from which participants can focus on a specific problem and become acutely aware of their cognitive entanglements, psychological rigidity, and avoidance of affective processing" (Trotter, 2012, p. 256). When veterans were able to develop these connections, they gained insight into how to integrate these parallels into their lives. The most commonly referenced metaphors, confronting fears, harnessing the fear, the fight-or-flight horse, and part of the herd are discussed in more detail below.

Confronting fears. According to Masters (2012), "The obstacles and challenges faced in the arena with the horse often mirror those that are presented in daily life for a veteran with PTSD. The metaphors reveal themselves in how the veteran perceives and approaches the challenge" (p. 7). One of the first challenges veterans faced was developing a relationship with a large and powerful animal weighing well over 1,000 pounds. Riders needed to overcome their initial fear of the horse and work to gain the

horse's respect and trust. Unsure and afraid, veterans learned how to approach and engage with this animal. Similarly, veterans were challenged confront their fears related to their war stress injuries. This may have come in the form of identifying that there was a problem and they needed help. As Mota (2014) described, "Relating their struggles to a large and powerful animal often provides clients with a visible reminder of how difficult their struggles can be and the importance of gaining a perspective of the problem and realizing the need for support" (p. 11). Their problem may have felt "larger than life," and overwhelmed them with trepidation. They pushed themselves to overcome this fear by beginning to approach the problem and starting engaging with it. Although veterans may have been fearful of engaging with the horse, that may have also been afraid of beginning their recovery. By confronting this fear, they began a contract between themselves and their horse that they were initiating their recovery. Veterans seemed to be willing and ready to take this risk and "just do all the things that I'm scared of and see what happens."

Veterans also associated confronting their fear to their level of anxiety, which took the form of distrust, uneasiness, skepticism, uncertainty, and apprehension. For most veterans, starting the THR was their first exposure to horses. Thus, being in the presence of a horse and needing to interact with it was an anxiety-provoking experience. Similarly, as a species focused on survival, horses are wary of any new presence (Parelli & Kadash, 1993). They will slowly approach a new object, person, or animal from all angles before deeming it safe or unsafe, even if someone the horse trusts presents the object. Thus, it was important to grant riders "permission to take time to adjust to the new object and activity, much like a horse would [and] to find new ways of relating the

new encounter to the influence of anxiety" (Trotter, 2012, p. 94). Furthermore, as riders gained greater comfort and confidence in the arena, their anxiety began to change as they "learn[ed] the cause of most episodes of increasing anxiety levels are due to being unaware and unfamiliar with new interactions. They can also begin to understand how previous moments of anxiety do not always predict future symptoms and struggles" (Trotter, 2012, p. 97). These experiences seemed to allow veterans to address issues of safety, patience, trust, interpersonal and intrapersonal conflict, and boundaries as well as providing opportunities for veterans to overcome their fears and build confidence (Buckley & Raulerson, 2013).

Harnessing the fear. As veterans confronted their fear, they also were able to "harness it." Harnessing the fear translated to overcoming debilitating feelings of anxiety, concerning social engagement, nightmares, or reintegrating into civilian life (Lancia, 2008). For example, learning how to halter and lead the horse became a metaphor for taking control of their lives and recovery process. When veterans were ready to ride, it symbolized a sense of empowerment, accomplishment, confidence, and growing progress in their recovery process (Porter-Wenzlaff, 2007). Furthermore, "harnessing fear" may be symbolic for decreasing the prevalence of persistent nightmares, lessening psychological distress due to war exposure, dismantling emotional barriers, and increasing interpersonal connection.

Harnessing the fear also occurs through the veteran's relationship with the horse by mastering various tasks during stressful situations. THR taught riders emergency stop skills, which helped the veterans remain in control of the horse when it became frightened and afraid. Through these lessons, the riders learned how to react quickly and

calmly to get their horse under control. By doing so, the riders also learned how to do that for themselves. A participant described, "Desensitizing the horses is actually good for the soldiers who have post-traumatic stress too because a lot of times, things can just spook them but they have got to learn to be calm."

Being able to help their horse return to a relaxed state and become less reactive also helped the veteran do the same for himself. Thus, being able to harness the horse may have acted as a metaphor to harnessing his or her own injuries. As different aspects of the veterans' lives became more manageable and controllable, their confidence in themselves to recovery and retain a healthier way of living seemed to be more achievable. They seemed to be able to "harness" more aspects of their lives.

The fight-or-flight horse. The horse itself also acts as a metaphor. It has been suggested that PTSD may be a chronic over activation of the autonomic nervous system, causing increased levels of flight or fight reactions (van der Kolk, 2003). Horses can be seen as hyper-aroused and hyper-vigilant, both of which are associated with PTSD symptoms as horses are on "permanent alter" and act on self-preservation instincts (Trotter, 2012). Thus, it may appear that horses and veterans may experience and express PTSD-related symptoms and behaviors. This similarity provides a foundation for not only metaphoric connections, but mutual understanding, connection, and trust, leading to powerful and healing relationships between the horse and veteran.

This overactive fight-or-flight response seemed to allow veterans to identify with the horse, providing an opportunity for positive reframes. For example, a participant explained an event in which two horses became entangled in barbed wire while trail riding. The first horse, trained to stay calm, stood still and allowed several rides to lift

each leg out of wire. The second horse panicked and became fatally injured by trying to escape. This metaphor, among others, seemed to help reframe veterans' negative associations with PTSD symptoms. For instance, when veterans experience fight-or-flight sensations, they may take a moment to think before reacting. If the situation is deemed safe, they can respond in kind. If the situation is deemed unsafe, they have a moment to consider a plan. Although the situation may have felt life threatening, the first horse was able to remain calm, tolerate the stress of the situation, and allow others to help. Conversely, the second horse, unable to ask or wait for help, was spooked and tried to run from the situation, only to become more hurt and injured by its attempts. Thus, the rider "may see how a proper fight-or-flight response is utilized by Horse (sic), and moreover, may find it possible to think of this symptom as a benefit for future safety, if consciously dealt with" (Garland, 2012, p. 36).

A participant described, "Horses are constantly trying to figure out if a new object or a new site or sound something like that is danger and that is precisely sort of what the situation you get put in during war." A horse's life depends on its ability to respond to environmental cues and quickly determine if something is life threatening. People with trauma histories tend to lose their ability to determine if a sight, sound, location, or person is safe. Trauma survivors may experience emotional numbness or over-activation and perceive situational cues as threatening. They lose their ability to use their emotions and bodily responses for present-moment survival (Trotter, 2012). Witnessing or experiencing these fight-or-flight sensations allows veterans to practice control over their own emotional and physiological response. As they gain more control, they are reaffirmed in their sense of power. "The goal is not to obliterate fear but to learn how to

live with it, and even how to use it as a source of energy and enlightenment" (Herman, 1997, p. 199).

Part of the herd. Being able to identify and respond to danger also means that the horse must develop effective communication skills within its herd. If not, its survival is in jeopardy and will be isolated from the herd, leaving them vulnerable to predators. By nature, they are herd animals and depend on one another for survival and security; a common instinct among humans as well. Like horses, veterans may also experience isolation from their community, family, and cohort because of their injuries. This separation may leave them vulnerable to increased physical and mental health issues. Thus, part of survival may include re-integrating into the human-herd and finding a place of belonging. This was reflected in the veterans' emphasis on the importance of a safe and trusting community in which they felt connected to and depended on. Being "part of something" seemed to allow veterans to re-establish social support; no longer vulnerable and exposed to societal isolation or unexpected circumstances.

Trauma recovery necessitates the ability to reconnect with others (Garland, 2012). Southivong, Ichikawa, Nakahara, and Southivong's (2013) study found that people with higher levels of perceived social support experienced milder symptoms of PTSD and suggested that "perceived social support can contribute to recovery from PTSD" (p. 768). THR seemed to reflect this necessary social component of trauma recovery as it assisted with building community, feelings of acceptance, and decreases feelings of isolation and rejection.

An aspect of reintegrating into civilian life was learning how to communicate effectively. One aspect of communication was learning how to assertively set and

maintain boundaries. In the horse herd, it is necessary to have clear and established boundaries (Hallberg, 2008). Horses are unafraid to react when their boundaries are questioned, disrespected, or intruded upon. "Mixed or incongruent messages are almost unheard of within the horse heard and rarely, if ever, would you find a horse allowing someone to violate his boundaries" (Hallberg, 2008, p. 179). As veterans worked with horses, they relearned how to establish and set boundaries, first with the horse, and then with others. They gain greater perspective on how to reclaim clear boundaries, what it is like when a boundary is disrespected, and what motivates them to want or need that boundary. This ability gives veterans a sense of their own role and responsibility within their familial or larger communal herd.

Furthermore, therapeutic horse activities helped riders learn the differences between passive, aggressive, and assertive communication and experienced what was like to be assertive and respected (Trotter, 2012). As Trotter (2012) described, "If we cannot communicate what it is we need and want from ourselves and others, we may become complacent and lost in our relationships and stripped of any social skills needed to maintain safety and community" (p. 184). Learning verbal and non-verbal ways of communicating assertiveness helped veterans define and refine their social roles in ways that provide a sense of confidence, identity, and empowerment. Veterans also seemed to be "able to improve the way they read and recognize nonverbal communications in others" (p. 191). Thus, interacting with a horse helped to motivate the veteran to begin to communicate and connect with others. A veteran summarized:

> Being able to interact with the horses and learn the self-awareness, learn what your body is saying and learning assertiveness and firmness, compassion, and all those different aspects of a relationship help you in relationships with other people and other aspects of your life.

Motivation and Investment in Recovery Process

Motivation played a significant role in helping veterans find ways to invest in their recovery process. Through weekly THR lessons, the veterans learned how to care for their horse, their handling and riding skills strengthened, and their relationship with the horse grew. Veterans were able to see their progress and growth as reflected in their skill development and relationship. This was unique because having the ability to see and witness this therapeutic change is often difficult to capture and recognize in therapeutic settings. Data suggested that THR played a significant role in helping veterans feel motivated to continue in their recovery process. Below describes ways in which the veterans became active participants in the program as well as in their lives as demonstrated by increased functioning in work, family, and community involvement. Additionally, veterans felt greater acceptance and compassion for themselves, motivating them to continue in their recovery process. Lastly, veterans seemed to be more willing to invest in their recovery process because of the enjoyment and challenge they experienced within THR.

Becoming an active participant in recovery process. For those struggling with the aftermath of trauma, finding a reason to continue living is challenging (Garland, 2012). A veteran described that his participation in THR allowed him "to feel confident, that life is still important, and that you still can be a part of something that allows you to associate with society again." Thus, "the prospect of riding and trying something new and challenging might be exciting and thus a motivator for trying to engage with life" (Garland, 2012, p. 30) and become an active participant in their recovery process.

Research suggests that the relationship between the horse and human serves as a primary motivational factor in trauma recovery (e.g., Bizub et al., 2003). For instance, Garland (2012) researched ways in which therapeutic horse activities helped with PTSD recovery and described that a desire to "reengage with life, a larger-than-life presence offered by [the] horse and the idea of mastery of new experiences may offer motivation for not giving up when intrusion of the trauma" (p. 33). In the currently study, veterans described that their time with their horses became the "highlight" of their week. The horse seemed to act as a companion in the veterans' recovery process, which encouraged them to continue to improve. Garland (2012) described:

> Resiliency is an extremely important quality in combating the helplessness that [trauma survivors] often feel as they learn to control PTSD symptoms. Persisting in their attempt to engage with life is taxing, and a bond with a horse may provide the motivation needed. (p. 47)

Data also suggested that as the veterans put greater investment in the relationship with their horse, they also reinvested in their own lives. Rector (2005) described, "A growing body of evidence suggests that people experiencing authentic empowerment through work with animals, especially large animals such as the horse, make healthy behavior choices" (p. xiv). Data reflected this statement as veterans reported making meaningful, yet challenging, changes in their lives. This included reinvesting into their families and their familial role, enrolling in college, exercising, and suspending the use of alcohol and other drugs. Veterans also reported motivation to continue in their recovery process by becoming more involved in the THR community through volunteering and enrolling in additional lessons. These choices seemed to also contribute to the reduction of war stress injury symptoms as veterans reported decreases in hypervigilance, panic, anxiety, depression, and nightmares.

Compassion and acceptance. Motivation was also reflected in veterans increased compassion and acceptance regarding their injuries and recovery process. Veterans conveyed compassion towards themselves as they regained safety, confidence, and autonomy in their lives. They also reported self-acceptance as they witnessed themselves change, develop, and recover from their injuries. These experiences seemed to facilitate greater investment and commitment to the veterans' recovery.

Data suggested that this sense compassion and acceptance helped veterans developed new perspectives towards their sense of self and how they wanted to live and be within their world. This new sense of self spilled over to how they wanted to interact and be perceived by others as veterans expressed increased compassion and empathy for other people. According to Trotter (2012), through therapeutic horse activities, riders seem to be "able to improve the way they read and recognize nonverbal communications in others" (p. 191). In the current study, veterans learned how to verbally and non-verbally communicate with the horse while also learning communication skills that applied to their work, family, and social contexts. Horses provided the veterans direct feedback concerning effective and ineffective ways of communicating and behaving. Through this, riders gained insight into their personal processes including ways in which they interacted, connected, and communicated with others (Rector, 2005). Thus, it seems as though interacting with horses helped to motivate the veterans to begin to communicate and connect with others.

Finding enjoyment in life again. Participants also attributed gains in motivation and enjoyment to their involvement in THR. This motivation seemed to increase internal, familiar, social, and vocational functioning as the veterans became not only

more active participates in their lives and recover process, but also experienced more joy and excitement. A veteran reported, "[THR] is what allows me to function, allows me to come out of myself, to come out of my home, to come outside of what I call 'normal' in society to be more involved in my kids' lives."

Data suggested that feeling a greater sense of purpose and enjoyment in life challenged veterans' sense of despair and hopelessness. Garland (2012) described:

> The motivational factor is also important in the remembrance and mourning stage of recovery from trauma, due to the survivor's helplessness and possible suicidality at this point. A relationship with a horse may add an exciting element to life and allow a chance for survivors to feel love and connection. Furthermore, a horse continues to empower them as they recreate themselves in the final stage of reconnection. (p. 48).

According to Rector (2005), therapeutic horse activities are "uniquely designed interactive exercises with horses [that] provide an interesting and fun process for awakening self-empowerment, while promoting team building, and interpersonal relationship skills" (p. xiv). A participant expressed, "One of the ways that I like to describe it is that we use skills that teach you how to play with horses to help you learn how to play with life." Because the activities are perceived as fun and enjoyable, veterans seemed to be more likely to invest their time and efforts into this form of intervention.

As experiences of enjoyment, recreation, and play were incorporated into other aspects of the veterans' lives outside of the arena, veterans also felt rewarded in their recovery process by being able to help other veterans. Many veterans become volunteers in addition to participating as a rider. This seemed to be one way in which the veterans continued to help others as well as a way to continue to help themselves. "Paying it forward" through THR also offered veterans a purpose and reason to reinvest in their

lives. "To have people who need me, to be able to be a person who can be needed is what they have given me. They have given me a reason to be alive again."

Limitations in the Research and Intervention

The discussion that follows addresses the limitations within the presented study as well as limitations within the general body of research and the intervention of THR itself. This includes discrepancies between qualitative and quantitative data, the absence of a mental health presence, novelty effects, and the impact of community understandings and expectations. The section concludes with a brief summary regarding the political nature and future of THR research and dissemination.

Discrepant Results

Based on the collected interviews, observations, and video recordings, data suggests THR to be efficacious and clinically meaningful for veterans recovering from war stress injuries. From their first-hand experiences, veterans purported that THR "works" and benefited from participating in the program. Previous studies regarding therapeutic horse activities with civilian and military populations have also reported similar qualitative findings (e.g., Asselin et al., 2012; Meinersmann et al., 2008; Monroe et al., 2012; Thelle, 2010). These studies emphasized the lived experiences of the riders and how the participants felt they were impacted by this mode of intervention. Yet, despite these cumulative perspectives, these positive outcomes are not well represented in the collected quantitative data. MacKinnon et al. (1995) described this discrepancy. "On the one hand, the qualitative results from parents, attending physiotherapist, and riding instructor generated highly positive, endorsing comments…[Conversely], statistical

analyses of the quantified measures produced results that suggest the riding programme was unsuccessful in demonstrating therapeutic benefits" (p. 28).

This discrepancy demonstrates the dilemma with clinical versus statistical significance. Although there are current efforts to establish assessment measures specific to this intervention and population (e.g., Duncan et al., 2014), it may be difficult to quantitatively capture the significant changes without the proper instruments. Pauw (2000) described the inherent weaknesses in studies examining therapeutic horse activities.

> Small sample sizes decrease the power of a statistical test to detect a clinically meaningful effect as statistically significant. This means that even if a clinically meaningful change occurred, the probability that the statistical test will detect it as significant is very small. (p. 525)

In addition to clinical versus statistical incongruities, Anestis et al. (2014) warned that research and popular literature has published overzealous claims of the effectiveness of THR and other therapeutic horse activities. "Consumers who come to believe in the effectiveness of an unsupported treatment run the risk of being directed away from effective care and towards an experimental approach less likely to yield beneficial results" (p. 14). Yet, given the "non-responsiveness," attrition rates, and resistive attitudes present in EBPs for PTSD, the opposite of this caution seems just as likely. Furthermore, veterans accessing this type of intervention may have already attempted traditional "effective care" options and sought alternative or "experimental" avenues for hopes of better outcomes.

Anestis et al.'s (2014) defensive posturing is understandable in light of these fervent and sweeping claims, most of which coming from poorly designed quantitative studies or descriptive/anecdotal evidence. Without supporting research, substantial levels

of skepticism, criticism, and disapproval have risen and the over-promotion and sensationalizing of this approach has led researchers, stakeholders, and clinicians to recoil. This appropriate response has led many research articles to conclude with recommendations for the completion of RCTs to address methodological weaknesses and to truly prove its efficacy. Anestis et al. (2014) recommended, "Results supportive of efficacy and effectiveness, incremental validity, and cost-effectiveness need to be obtained and replicated by multiple independent research teams prior to the dissemination of marketing of [therapeutic horse activities] to practitioners and the general public" (p. 15).

Recommendations such as these, however, limit and illegitimatize others forms of data and evidence. The strength of the current study is in its representation of the actual voices of the consumers, the veterans. As Gilroy (2006) warned:

> Privileging of one kind of evidence does not constitute a fair and open process. The examination of evidence from the range of research methodologies, including that from firsthand witnesses [of] the clients, their families and all those offering the treatment and services, would make it far more egalitarian, less biased, and methodologically robust system. (p. 24)

Absence of a Mental Health Professional

Another potential limitation to this study and the intervention of THR is the absence of a mental health provider. According to Hallberg (2008), educational horse programs, such as THR, do not have a mental health component. Thus, it is ethically responsible for educational/learning programs to "understand how that method is distinctly different from one that uses…a mental health service" (p. 214). Despite these differences, it is difficult to control how riders are responding to their participation.

Being around a horse may be inherently therapeutic for a person and clinical material may surface, regardless of the setting.

The absence of a mental health professional during THR may sit unfavorable with mental health clinicians as well as researchers, policy makers, funding bodies, and other stakeholders as it conveys a lesser importance and need for a mental health presence. In the current study, this preference was supported by veterans' specific descriptions of how the absence of a mental health presence was of benefit to them. As described in the results, veterans in the study described their lack of support from and discomfort with interacting with mental health professionals. They reported feelings of despondency, disappointment, and frustration when recounting their efforts in finding and receiving traditional mental health care.

This is not to suggest that a mental health presence should not, nor cannot, be a part of this intervention, rather, great intention and thought needs to be exercised on part of the mental health profession. The absence of a mental health provider may create higher levels of risk for THR programs. War stress injuries are complex. THR instructors and volunteers may be ill equipped to respond to crises appropriately. They may become overwhelmed by suicidal ideation, drug and alcohol abuse, or intense episodes of panic or irritability. Thus, it may be ethically responsible for programs to have a professional trained and experienced to handle these types of events.

If programs feel as if they are working outside of their competence, it is highly recommended for them to incorporate a mental health provider, if not onsite, then for on-going consultation. This recommendation needs to be balanced with the veterans' preferences for a mental health presence, which also needs to be considered and

respected. Furthermore, the human-horse connection may provide avenues for communication and connection with mental health professionals to form collaborative and trusting relationships with veterans. Thus, more evidence regarding this approach may provide mental health professions with methods as to how they can utilize both standard and complementary methods, such as therapeutic horse interventions, with military members suffering from war stress injuries.

Novelty Effect

The study and intervention may also be limited by the influence of potential novelty effects on the participants' perceptions. The novelty of being on a farm/ranch, interacting with a horse, and spending time outdoors is vastly different than the conventional and standard ways of conducting therapeutic services. Because of this, Anestis et al. (2014) purported that "Equine approaches are especially vulnerable to novelty effects because interacting with a horse is probably an unusual and exciting experience for most individuals…and it is impossible to parse the effect of the intervention from other factors" (p. 8).

Regardless of the intervention, confounding variables are difficult to control for in both alternative and standard approaches to care. For instance, it is difficult to account for variables that take place outside of the clinical environment such as social relationships, time, and other variables unrelated to the intervention. Unique confounding variables are especially apparent in recreational-based interventions. Participants may perceive themselves as improving because of the "fun" and newness of interacting with a horse and being outside. They may feel more motivated to engage in

such treatments or there may be inherent therapeutic effects of sun exposure and being in nature.

Re-interviewing veterans could address this concern in which participants would be contacted at different times during and after their participant within the program. If the therapeutic effects were due to the novel aspect of the horse, the effects would likely diminish with repetition and/or over time. In the current study, veterans entered the program with different levels and familiarity with horses. For some, it was their first encounter while others grew up working with horses. Despite their level of familiarity, veterans seemed to continue to benefit from their interaction with the horse well after the completion of their first eight-week course as seen in their choice to continue to develop their horsemanship skills. Future studies may consider reviewing videotapes and/or photographs of the participant's interaction with the horses which would provide opportunities to discuss their developing relationship with the horse and how, or if, the novelty of this activity changed over time.

Collective Understandings and Expectations

Results of this study may have also been impacted by collective community understandings and expectations, creating homogenous conformity and agreement. Participants in this study spoke highly of their involvement in the program. When asked to describe weaknesses of THR, few participants articulated these challenges. Participants may have been reluctant to describe such detail for a number of reasons including the desire to present THR favorably, perceived expectations of the researcher, personal or communal expectations, etc. For instance, due to the intimacy of the community in which the participants were a part of, they may have communicated to one

another about the interviews that were being conducted. This may have influenced their responses as an attempt to convey congruency within the community. Furthermore, participants seemed to use similar language to describe different aspects of the program. This may be due to the teacher-learner dynamic in which the riders retell examples and stories that an instructor told them during a lesson. Thus, there may be a shared or collective understanding of what THR *should* provide therapeutically or otherwise. This level of homogeneity within the culture of the THR program has the potential to skew the results in a more favorable light. Additionally, there is an inherent sample bias within the study. Participants were hand selected by an informant within the community, which may have impacted the portrayal of THR. Future studies may benefit from interviewing riders from multiple sites as a way to control research expectations as well as the potential of collective community understandings and conformity. Furthermore, interviewing participants who did not complete the THR session would also provide meaningful information regarding this intervention.

Summary

According to Hallberg (2008), research on therapeutic horse activities is an attempt to:

> Make this journey practical and understandable. We must demystify the process and bring it to people in a palatable manner and that they can accept. By working with horses, are through the relationships that are created, profound change is possible, and the creation of a new paradigm becomes a "logical" next step. (p. 137)

THR is developing a strong research foundation but not one that fits the orthodox framework of EBP. According to Brown, Crawford, and Hicks (2003), "Research evidence is only deemed to be relevant and acceptable if it reinforces the values and

existing ideology of the professional groups involved" (p. 98). The current values and systems of research "are problematic because of the ridged and value-based criteria of systematic reviews that privilege RCTs and quantitative research over qualitative and process-oriented research, excluding an enormous amount of knowledge and creating value-driven care" (Gilroy, 2006, p. 12).

The lack of empirical support for treatments that do not meet the value-based criteria is displayed in the lack of funds given to such approaches. The struggle to obtain the necessary funding for less empirically supported approaches was summarized in this veteran's frustration. "I know for a fact this program works, I know from experience this program works but there is no hard data yet. What hoops do we need to jump through to get official funding?" The organization studied in this research provided THR to veterans at no cost and thus, the efforts to continue the program came from volunteering and donations. A participant expressed, "Veterans have paid the price by serving our country so…there is not cost involved." This may be unique to this particular program, which at the time of this study was, the largest THR program specifically serving veterans in the US.

Although programs and studies using therapeutic horse activities offer encouraging results, there is a paucity of data on treatment access, training, long term effects, and outcome, all of which raise concern of its efficacy and evidence base. The lack of support and funded research efforts create an ongoing cycle and barriers in which veterans have decreased access to such under-funded programs. THR programs and research efforts are largely under-resourced by government funding and receive limited credence in the scientific literature. Part of the problem stems from "EBP's demand for

unequivocal evidence of effectiveness and efficiency [which] has created a situation where one research methodology, the RCT, is privileged about all others…which exacerbates problems with funding" (Gilroy, 2006, p. 7). In order for well-designed efficacy trials to be conducted, more support and commitment from the VA and DoD may be necessary for less studied interventions, like THR, to be investigated.

Studies regarding therapeutic horse activities end with similar recommendations calling for rigorous methodological designs, standardized measures, larger sample size, statistical power, control groups, and ultimately the need for the gold-standard RCT (Selby & Smith-Osborne, 2013). RCTs may provide quality assurance and help demonstrate THR's effectiveness, improve practice, and support services particularly with the war stress injury population. This is especially important because THR remains relatively unknown, unavailable, and under-funded to those who may benefit from it. However, without the support of funds and resources to support the conduction of an RCT, the dissemination and application of this activity to the public and military sector may continue to be restricted and inhibited in its development of services and practices that are outside of research's value-laden framework (Gilroy, 2006).

Quantitative data helps build a rational for determining to what extent a treatment intervention seems to be effective under strictly controlled conditions. However, qualitative research efforts need to continue to be conducted in order to further understand how and why therapeutic horse activities and programs benefit the consumers.

> Qualitative research is thought to have significant weaknesses because of the circumstances of its production have all the unpredictability and complexities of routine practice that call its validity into question. However, its strengths are in the foregrounding of the meanings, concerns and attitudes of users, the inclusion of practitioner views and locating research in the real world of practice. (Gilroy, 2006, p. 85)

Future qualitative and quantitative research efforts will contribute to the collective evidence base of therapeutic horse activities and further strengthen the foundation for further research and dissemination.

Conclusion

According to the NCD (2009), "American service members have sacrificed a great deal in the battles in Afghanistan and Iraq, and many of those who have returned are still battling" (p. 6). Thus, the battle for many military members continues within themselves. War stress injuries can change a person's life dramatically and the consequences of these effects can be long lasting, if not fatal. With the rising number of military members returning from deployments and/or intensive training activities, higher numbers of war stress injuries are being reported. For the wars in Afghanistan and Iraq, Fischer (2014) reported over 6,500 military personnel have died, 50,000 were wounded in action, and 353,000 received diagnoses of PTSD and/or TBI. The current standards of care (e.g., exposure therapy, cognitive therapy) are limited by their availability, accessibility, and outcomes (e.g., retention, early drop out, resistance, non-responsiveness). Furthermore, the inadequate staffing and training of mental health professionals exacerbates pre-existing issues with these prescribed EBPs and brings into questions the quality of care military members receive.

These issues have required alternative and complementary approaches to be developed and refined in order to provide more options and services for the military population. In 2007, the U.S. Department of Defense Task Force on Mental Health recognized this need and concluded that, "New strategies to effectively provide services to members of the Reserve Components are required. Insufficient attention has been paid to the vital task of prevention" (p. 9). One such new approach is the therapeutic use of animals, specifically horses, as a treatment options for returning military members. However, although there are organizations, scholarly journals, and media coverage that

support the use of THR with a variety of populations, age groups, and mental/physical health concerns, there is insufficient evidence purporting its use with veterans coping with war stress injuries.

The purpose of this study was to describe the activity of THR as a possible intervention for military members struggling with war stress injuries. The perspectives of veterans, equine instructors, and volunteers were collected through in-depth interviews, observations, and audio/visual material. A qualitative case study approach was used to facilitate a richer understanding of the effects of THR for those with war stress injuries. This approach was exploratory and was preferred over other quantifiable methods because of the detail of real-life, clinical experiences (Yin, 2010). An advantage of using a qualitative intrinsic case study approach was that it provided a detailed account that demonstrated the unique experience of THR for veterans with war stress injuries. The underlying assumption of this approach "is that there is an essence or central meaning of an experience shared by individuals that can be investigated and explained through research" (Hancock & Algozzine, 2006, p. 9).

Nine participants were asked to describe their experience of THR in order to obtain a comprehensive understanding of the activity. Veterans self-identified as having current and/or past symptoms/diagnoses of PTSD, anxiety, panic, and/or depression. Riders also reported problems with memory, social isolation and discomfort, alcohol use, anger management, and family issues. One rider reported having previous experience and training with horses. For the other rides, their participation in the program was their first exposure to equines. Veterans in this study had previous exposure to traditional

methods of care recommended by the VA/DoD but reported continued war stress injury symptoms impacting social, familial, vocational, and intrapersonal functioning.

This study followed Creswell's (2009) systematic process of interpreting textual data. To strengthen the credibility of the findings, a number of validity strategies and reliability procedures were employed. This included triangulation procedures including transcription accuracy, thick descriptions, and member checking as well as assessing commonalities in participants' perspectives, and cross-checking; the process of peers reviewing, checking, and challenging codes and themes (Creswell, 2007; Stake, 2010).

Four primary themes were found in the data: community support, relationship, transferable skills, and motivation. The relationships the riders formed with the horses and community promoted positive changes in veterans' trauma recovery through the acquisition of horsemanship skills and increased feelings of motivation and purpose in one's life. The sense of community was described as an accepting, non-intrusive, place in which veterans could provide and receive support to their peers. These relational aspects within the community are paralleled with the bond and attachments formed between the horse and rider. This relationship developed through groundwork and riding exercises, which encouraged riders to rebuild trust, safety, attachment, and mind-body congruency with their horse. Moreover, these horsemanship lessons mirrored emotional, cognitive, physical, and social aspects of the veterans' lives as riders repeatedly reported gaining insight and clarity into these dimensions. Lastly, veterans' attributed gains in personal motivation to their THR participation, expressing that it provided them with a new sense of purpose and reason to live.

During the THR program, veterans engaged in a number of activities with the horse including grounded (e.g., grooming, cleaning, leading, round pinning) and mounted (e.g., sitting and riding) exercises. These activities assisted veterans in developing safe and trusting relationships, with the horse, and subsequently with themselves and others. The restoration of recovery seemed to be fostered through the provision of safety, trust, empowerment, autonomy, confidence, and self-awareness/regulation. Yorke et al. (2008) described:

> Riders develop mutual trust, acceptance, liking, and intimacy with their horses, and concurrently develop skills, mastery, and self-esteem through collaboration, facing fears, and taking risks while riding. It is not difficult to understand how such advancements could be applied to other parts of one's life. (p. 27)

THR exercises also helped veterans discover their own solutions to how to best cope with emotional, cognitive, social, and physical hindrances. With regards to cognitive functioning, the sequential order needed for grooming and preparing the horse for riding seemed to improve veterans' perceptions of their working memory skills, attention, and concentration. As mastery of horsemanship skills developed, veterans' experienced increases in their confidence and self-esteem. This could be seen in their ability to overcome their fear and intimidation of the horse and accomplish complex tasks, including tasks needed for their recovery.

This sense of mastery and ability to communicate with a large animal also increased motivation and empowerment and decreased feelings of hopelessness, doubt, and incompetence. By becoming the horse's leader, veterans experienced what it was like to be in control of something much larger than themselves and learn how to effectively communicate assertively and set boundaries. Self-monitoring/regulation skills were also developed, as riders needed to be acutely aware of their feelings in the presence

of the horse. Horses respond to humans' internal states and can sense when the rider is unaware of incongruent thoughts, emotions, and actions. Thus, self-awareness and non-verbal communication skills were developed, as riders needed to continuously assess their internal processes in order for their emotions to "facilitate rather than interfere with the task at hand" (Trotter, 2012, p. 244).

Furthermore, as veterans gained greater mastery in these skills and experiences, they also began to be able to reconnect with themselves and others. The playful and recreational aspect of THR should not be overlooked, as they seemed to help with social connection and reintroduced spontaneity and creative freedom in one's life as the veteran interacts with the horse, other veterans, and staff. Thus, the skills and experiences in which veterans were exposed to through THR were transferable to their daily lives. As Gilling (2013) remarked, riders have "very special bonds to the horses. The human-horse relationships have been therapeutic, and the psychological benefits have been transferable to patients' daily lives" (p. 20).

Focusing on these tasks also helped veterans build healthy perspectives on their war stress injury as they directed their attention and interests away from depressive ruminations towards safe and meaningful interactions. Veterans' self-concept of their injury was also challenged in the face of the horse, leading to a more compassionate and self-accepting view of themselves. These new perspectives were fostered through the use of metaphor. Therapeutic horse activities provide "the warrior a visible metaphor to apply to his or her own life" (Buckley & Raulerson, 2013, p. 211). As a veteran abridged, "horses will teach you different ways to look at the world." Hallberg (2008) described:

> The very nature of a horse seems indicative of their role within our evolving consciousness. They enjoy companionship and relationship, strive to get along rather than fight, are affectionate and enjoy play, and are curious, willing, adaptable, and communicative. They learn from their past experiences and remember their past, learning how to do things differently in the future. Horses develop these characteristics because it is these very attributes that allow them to survive for thousands of years…Without curiosity, horses may live in perpetual fear of the world, but instead if they are able to foster their curiosity, they become interested in invented. They learn to understand what is *actually* dangerous versus what might just appear scary. This distinction provides a constant source of interest and excitement in life and allows horses to push past unreasonable fear towards a greater likelihood for survival…It is through curiosity that horses come to understand their world without immobilizing fear of what might be. (p. 93)

What Hallberg (2008) is describing was reflected in the veterans' experiences surviving and recovering from war stress injuries. Helping veterans learn and practice these same skills and experiences (e.g., curiosity, willingness, courage, excitement) within the context of THR, there is possibility for deep, meaningful, and long-lasting change.

The data from this study reflected clinically meaningful results, which suggest that THR is efficacious for veterans and their recovery process. These results also support the current body of knowledge and reflect similar findings in other studies (e.g., Gilling, 2013; Yorke et al., 2008). Scientific and popular literature advocates that therapeutic horse activities could provide a new avenue of treatment for the veteran population (e.g., Duncan et al., 2014; Durham, 2011; Gilling, 2013; Lancia, 2008). Preliminary findings in the literature are promising, yet flawed, suggesting statistically and clinically significant results of improvement among veterans with war stress injuries. However, THR's "alternativeness" makes it unique and may be especially advantageous for those who find it difficult to engage in conventional services.

It is important to note that although the body of research suggested favorable results (e.g., Asselin et al., 2012; Smith-Osborne & Selby, 2009) therapeutic interventions involving an animal should not be considered as an appropriate option of all veterans. For instance, some veterans may have service related or other acquired physical disabilities, medical conditions such as allergies, or other safety issues, such as a fear of animals, that may prevent them from benefiting from this approach (Minatrea & Wesley, 2008). As with any type of treatment approach, veterans need to be fully informed of the possible risks and benefits of this intervention. Veterans should also be informed that, although the body of evidence of this form of treatment is growing, it is not as established as other treatments.

Based on the current findings, it appears that veterans benefited from THR and provided an alternative means of care, especially for those who do not respond well to traditional treatments. It is imperative that more research is conducted regarding the effects of therapeutic equine activities to better understand THR's unique properties, applications, and possible benefits it may have for this unfortunately growing population. Mental health professionals can collaborate with organizations providing THR as a treatment for returning veterans who are dealing with war stress injuries to facilitate an increase in overall quality of life. The continued development of standardized curriculum, therapeutic practice, assessment measures, and guidelines will result in syntheses of the best substantiation available, allowing researchers, stakeholders, providers, and consumers to fund, resource, integrate, and recommend THR for war stress injuries.

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Appendix A

Interview Informed Consent Form

Interview Informed Consent Form

Antioch University Seattle
Informed Consent Form

The Clinical Psychology Program supports the practice of protection for human subjects participating in research and related activities. The following information is provided so that you can decide whether you wish to participate in the present study. You should be aware that even if you agree to participate, you are free to withdraw at any time, and that if you do withdraw from the study, you will not be subjected to reprimand or any other form of reproach.

Procedures to be followed in the study, identification of any procedures that are experimental, and approximate time it will take to participate:

You will be partaking in an in-depth interview process. You will be asked to talk about your experience of THR and describe any changes you have noticed while engaged in THR, and what it is like working with horses. The interview process will also ask you about how satisfied you have been with the program and if you would recommend this type of program to others. The interview process will be audio taped. The audiotape will later be transcribed and used in the process of analysis. The interview will take approximately 1 to 1 ½ hours.

Description of any attendant discomforts or other forms of risk involved for subjects taking part in the study:

As you talk about your experience, you may feel distressed. If you become distressed and wish to discontinue the interview please let me know. You may also feel uncomfortable talking about the organization you are a member of or work/volunteer for, particularly if it is a negative comment. You are free to omit the names of people or organizations and use generic descriptors. You may also choose to use a pseudonym. Your identifying information and that of other members in the organization will be omitted from findings, reports, recommendations, and printed materials that may result from this interview. The organization will not have access to the interview transcripts or your name. You do not have to answer any question you do not wish to, and you may terminate the interview at any time without penalty.

Description of benefits to be expected from the study or research:

This study may benefit over veterans and organizations who use or are interested in THR by providing information about the activity from a variety of perspectives. It may provide further benefit to the human service field through the descriptions of the activity to help inform the organization and other professionals interested in this type of program. You may not receive any immediate personal benefit by participating in the interview.

Appropriate alternative procedures that would be advantageous for the subject:

You may choose not to participate in the interview.

Patient Rights:

I have read the above statement and have been fully advised of the procedures to be used in this project. I have been given sufficient opportunity to ask any questions I had concerning the procedures and possible risks involved. I understand the potential risks involved and I assume them voluntarily. I likewise understand that I can withdraw from the study at any time without being subjected to reproach. I understand that should I have any additional questions I may contact Ms. LaFleur at 701.740.7223. If I am not satisfied with the manner in which this study is being conducted, I may contact the Human Subjects Committee, which is concerned with protection of volunteers in research projects. The Human Subjects Committee can be reached at Antioch University Seattle, 2326 Sixth Ave. Seattle, WA, 206-441-5352

Signatures:

The nature demands, risks, and benefits of the project have been explained to me. I understand what my participation involves and I am choosing to participate in this project. I am aware that a copy of this form will be given to me.

Signature _____ Date _____
Participant and/or Authorized Representative

Signature _____ Date _____
Research Investigator

I give my permission to be re-contacted at a later date for possible follow up future study:
Yes ___ No___

Appendix B

Interview Protocol

Interview Protocol

Date:
Place:
Interviewee:
Position of Interviewee:
Time in program:
Relationship to the military:

Thank you for your willingness to meet with me. The purpose of this project is to describe the activity of THR from a variety of perspectives. In order to better understand the program, I'd like to ask you to talk about your opinion of the program and TRH.

Questions:

1. Tell me about your role while at RTR?
2. Why did you get involved in this type of program?
3. What was it like when you first started? How have you been involved? What have you noticed changed?
4. When you walk into the paddock, what do you see? Describe to me what I would see if I walked into the paddock.
5. What is it like working with a horse?
6. If I had been in the program with you, what would I have seen you doing? What would I have experienced? What would I see happening? What would be going on? Describe to me what one of those sessions would look like.
7. How do you feel about the program? Would you say that you are (a) very satisfied, (b) somewhat satisfied, (c) not too satisfied, (d) not at all satisfied?
8. What larger ramifications has your participation/role in this program created?
9. Some people don't think THR is helpful. What would you say to them?
10. From your perspective, what has been helpful about THR?
11. What has been the most meaningful aspect of THR?
12. From your perspective, what has been unhelpful about THR?
13. What, if any, other types of programs/treatments have you used before trying THR?
14. Who would (or would not) you recommend this for?
15. What else should I know about this program?

Appendix C

Observation Protocol

Observation Protocol

Date:
Time:
Location:

Descriptive Notes	Reflective Notes
Description of the participants, reconstruction of dialogue, description of physical setting, accounts of particular events/activities	Researcher's personal thoughts, feelings, problems, ideas, hunches, impressions, prejudices