

AN EVIDENCE-BASED PROTOCOL OF EQUESTRIAN THERAPY IN VETERANS

WITH POSTTRAUMATIC STRESS DISORDER:

A BEST PRACTICE APPROACH

By

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A Thesis Submitted to The Honors College  
In Partial Fulfillment of the Bachelor's degree

With Honors in

Nursing

THE UNIVERSITY OF ARIZONA

MAY 2014

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<b>Honors area (eg Molecular and Cellular Biology, English, Studio Art):</b> Nursing	
<b>Date thesis submitted to Honors College:</b> May 6, 2014	
<b>Title of Honors thesis:</b> An evidence-based protocol of equestrian therapy in veterans with posttraumatic stress disorder	
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An Evidence-Based Protocol of Equestrian Therapy in Veterans with Posttraumatic Stress

Disorder

A Best Practice Approach

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## ABSTRACT

This thesis serves to develop a best practice protocol for veterans suffering from Post Traumatic Stress Disorder (PTSD) through the use of equine facilitated therapy. Posttraumatic Stress Disorder is a condition that results from going through traumatizing events and “re-living” the trauma over and over again. This leads to nightmares, avoidances of certain situations, extreme anxiety, and negative changes in mood and behavior, often causing more serious issues such as depression, substance abuse, loss of trust, extreme angry behavior, secondary wounding, and the inability to carry out daily activities (Mills, 2013). Through extensive research on articles and equine facilitated therapy organizations, and observation at Therapeutic Riding Of Tucson, it is clear that riding therapy programs have provided great benefit to those receiving treatment, and those individuals are able to incorporate the skills they have learned into their lives, decreasing the symptoms of their disease. By researching the beneficial effects of equine facilitated therapy on relieving the symptoms of those suffering from PTSD, an evidence based protocol was developed to guide nurses to establish a plan of care that can be easily accessible and incorporated into the treatment plan of the veterans that may benefit from therapeutic riding.

## CHAPTER 1

### Introduction

#### **Statement of Purpose**

This thesis serves to develop a best practice protocol for veterans suffering from Post Traumatic Stress Disorder (PTSD) through the use of equine facilitated therapy. Background on the prevalence of PTSD, current treatment options, and the importance of effective treatment in order to improve overall quality of life, is discussed, as well as providing an overview of equine facilitated therapy and its benefits in healthcare. This relationship provides a basis for studying horseback riding therapy as a treatment option for veterans suffering from PTSD.

#### **The Use of Therapeutic Riding in Clinical Settings**

Since the beginning of time, there has been a remarkable relationship between humans and animals. This relationship has aided in improving the lives of those experiencing mental, physical, or emotional pain (American Humane Association, 2011). Since the 1600's, animal therapy has become a form of treatment for people of all ages, suffering from physical or mental disorders (American Humane Association, 2011).

Although it is unclear when equine facilitated therapy became a specialized field, horses have been known to provide therapeutic benefits since 460 BC (Asselin, Ward, Penning, Ramanujam, & Neri, 2012). Riding programs have developed a team approach in order to achieve behavioral, cognitive, physical, educational, social, and emotional goals, specifically incorporated into the treatment plan for each individual patient (Fischbach, 1999). A team of horseback riding specialists, volunteers, registered nurses, and psychiatric nurse practitioners often work together to facilitate a riding program, aimed to provide optimum results to each patient being treated (Asselin et al., 2012). Riding sessions vary in length and frequency

depending on the severity and characteristics of the patient's illness, as well as the facility in which the therapy is performed (Fischbach, 1999). The general goal of a therapeutic horseback riding program is to encourage patients to develop a trusting connection with the horse, learn the basics of controlling and riding the horse, ultimately leading to increased patient self-esteem and contentment (Full Circle Therapy, 2007).

A common and more specific type of therapeutic horseback riding is hippotherapy. Hippotherapy focuses on developing goals to increase the motor performance, fine motor skills, balance, and posture, and is used most often with patients who are suffering from a physical disability, rather than a mental or behavioral illness (Bongers & Takken, 2012). In order to achieve these goals, a licensed therapist uses the horse's repetitive, smooth movements to relax and stretch the patient's muscles, as well as to challenge posture and balance, allowing for increased physical mobility (Full Circle Therapy, 2007). When an individual participates in a therapeutic riding program, they still reap many of the same benefits as one receiving hippotherapy. However, in hippotherapy, the benefits come naturally from the movement of the horse, and is often more successful in improving the outcome of patients with moderate to severe physical disabilities (Full Circle Therapy, 2007).

### **Equine-Facilitated Riding Programs in the U.S.**

In February of 2013, Marsha Mills, a Psychology Chief at the Martinsburg VA Medical Center and member of PATH International, conducted a presentation at an equestrian therapy workshop, encouraging therapeutic horseback riding as a therapy option to veterans diagnosed with Post Traumatic Stress Disorder. Dr. Mills has facilitated a therapeutic riding program with the Professional Association of Therapeutic Horsemanship (PATH) aimed towards providing services veterans with severe and chronic PTSD. The goal of PATH International is to

“reintegrate the servicemember into a calm, peaceful social environment...accomplished by enabling the servicemember to work on an individual basis with a horse and therapist” (Wilson, 2014). Mills has expressed satisfaction with the success rate of creating positive behavioral outcomes in patients suffering from this illness. Mills reports a decrease in the veterans’ anxiety, depression, substance abuse, over protectiveness, sleep disturbances, and suicidal thoughts and actions after they have received horseback therapy. According to Mills, during equestrian therapy, veterans come to terms with the traumatic events that occurred in their past while serving in the war. Dr. Mills is attempting to create awareness across America regarding the seriousness of PTSD, and is encouraging more health care settings to provide equestrian therapy to veterans suffering from this disease (Mills, 2013).

The program “Horses for Heroes,” created by the organization “Horses Helping People,” offers services to veterans of all ages. These veterans may be suffering from a mental illness triggered by the events they experienced while serving in the military, as well as veterans who have sustained physical injuries during their time at war. Common mental illnesses that are seen and treated at this program are auditory and visual impairments, posttraumatic stress disorder, and depression (Horses Helping People MA, 2011). Common physical disabilities seen in veterans include traumatic brain injuries, limb amputations, and spinal cord injuries (Horses Helping People MA, 2011). The bond that is formed between the rider and the horse fosters independence and freedom, and improves confidence and self esteem in the rider. Additionally benefits that have been seen through this program in participating veterans include normalization of muscle tone, increased range of motion, the development of strength, coordination, and fine or gross motor skills, increased concentration and self-awareness, improved sense of well being and normalcy, and the instillation of patience and self control. Improvements and developments of

these qualities help the individual effectively cope with their traumatic past, and can enhance their overall quality of life (Horses Helping People MA, 2011).

Therapeutic Riding Of Tucson (TROT) is an organization based in Tucson, Arizona, and is aimed at providing equestrian therapy services to men and women of all ages, with a variety of mental, behavioral, or physical disabilities. One day a week, they hold programs specifically for military veterans a wide variety of illnesses. The mission of TROT is to “enrich the lives of people with special needs using equine-assisted activities and therapies to improve physical, mental, social and emotional well-being” (Therapeutic Riding of Tucson, 2013). Commonly seen at TROT are children and adults with autism spectrum disorder, cerebral palsy, stroke, learning disabilities, genetic syndromes, or traumatic brain injuries, as well as veterans with PTSD, traumatic brain injury, paralysis, spinal cord injuries, or amputations (Therapeutic Riding of Tucson, 2013). Through observation and research at TROT, it is apparent that this organization is successful in increasing the participant’s overall functioning and quality of life.

Other equestrian therapy organizations that provide services to veterans include, but are not limited to, Epona Equestrian Services, Manes and Motions, and Equine Assisted Growth And Learning Association (EAGALA). Each organization uses similar approaches to achieve the goal of utilizing a fun, non-conventional form of therapy in an attempt to normalize the lives of each participant.

### **Post Traumatic Stress Disorder (PTSD) in Veterans**

War is an indescribable experience that can leave one damaged physically or emotionally (Moran, Schmidt, & Burker, 2013). Returning from war often results in the veteran’s inability to emotionally cope with the atrocities of war, leading to the development of a mental disorder. Common mental disabilities that veterans suffer from are Post Traumatic Stress Disorder,

depression, anxiety disorders, bipolar disorder, and schizophrenia (United States Department of Veterans Affairs, 2013). Returning from war can also negatively affect the veteran due to bodily injuries, such as spinal cord injuries, brain trauma, limb amputations, and loss of vision or hearing (United States Department of Veterans Affairs, 2013). On certain occasions, veterans are able to use past experiences in the military to look at life in a new, more positive way. They do not take for granted the things in life that they did before. These veterans experience a phenomenon called Posttraumatic Growth. Posttraumatic Growth is defined as positive psychological changes after experiencing trauma (Moran et al., 2013). These positive changes manifest as spiritual maturation, openness to new opportunities, increased sense of self, and the development of a greater appreciation for life (Moran et al., 2013). Regardless of time spent in the military, time since returning from war, gender, or age, these conditions can affect every aspect of life. Numerous treatment options are available, in order to increase the veteran's quality of life and sense of self. Rehabilitation specialists aim to provide assistance to all veterans returning from war, in an attempt to establish Posttraumatic Growth behaviors, instead of developing Post Traumatic Stress Disorder (Moran et al., 2013).

Being the most common mental illness that affects U.S. veterans, Post Traumatic Stress Disorder (PTSD) is present in about 11-20% percent of Iraq and Afghanistan war veterans, 10% of Gulf War veterans, and 30% of Vietnam veterans (United States Department of Veterans Affairs, 2013). PTSD is a condition that occurs after one or more tragic events, where the individual "re-lives" the trauma over and over again (Mills, 2013). Veterans who suffer from PTSD are haunted by the terror and violence that they have experienced while in combat, and are unable to carry out daily activities, due to the stress and lack of control they may experience (Mills, 2013). The individual may have bad memories or nightmares of the event causing lack of

sleep, they may avoid situations which remind them of what has happened, they may have negative changes in mood or beliefs about them self or others, and they live in a constant state of hyperarousal, in order to avoid danger (United States Department of Veterans Affairs, 2013).

Veterans affected by PTSD may also develop additional health or behavioral issues. These include depression, substance abuse, loss of trust, extreme angry behavior, self-inflicted harm, anxiety, sleep disturbance, and the inability to manage a family or career (Mills, 2013).

The symptoms and presentation of those with Post Traumatic Stress Disorder can vary greatly from person to person. Those experiencing mild symptoms may be affected by the events of the past, without it interfering with their daily activities and relationships. On the other hand, those with severe symptoms may cause great distress and interference throughout all areas of life. Regardless of symptom severity, all individuals struggling with PTSD are recommended to undergo treatment in order to cope with continuing to live with the traumatic events that occurred while at war.

The two most common treatment options provided to veterans with Post Traumatic Stress Disorder are cognitive behavioral therapy and medications (United States Department of Veterans Affairs, 2013). Cognitive behavior therapy focuses on developing skills to understand and cope with the traumatic event by changing thoughts and feelings (United States Department of Veterans Affairs, 2013). Cognitive behavior therapy also encourages the patient to discuss the traumatic event repeatedly, so that it is no longer brings upsetting thoughts and feelings (United States Department of Veterans Affairs, 2013). Medications are also effective for treating the core symptoms of PTSD. A selective serotonin reuptake inhibitor (SSRI) is commonly given to treat depression, increase the patient's self-esteem, and allows them to more easily cope with their past traumatic experiences (United States Department of Veterans Affairs, 2013). Prazosin,

an alpha-blocker typically used to treat high blood pressure, is commonly given to decrease nightmares related to the traumatic event (United States Department of Veterans Affairs, 2013).

For those suffering from Posttraumatic Stress Disorder who wish to undergo a form of non-pharmacological treatment, horseback riding therapy is a promising option. Riding therapy is rising in popularity for the treatment of many illnesses and disabilities, and certified programs are becoming more easily accessible for those who wish to use horseback riding to lessen symptoms and ultimately treat their disease. The Equine Assisted Growth and Learning Association (EAGALA) is a world-wide organization aimed to provide equine therapy to individuals of all ages, suffering from various diseases or disabilities, including veterans who suffer from PTSD or other behavioral disorders. The EAGALA military services offer a “series of workshops focusing on coping resources, resilience and anger management” (EAGALA, 2010, para. 5) and the majority of veteran participants have expressed satisfaction and gratification upon completing the program. Through extensive research on articles and equestrian organizations, it is clear that riding therapy programs have provided great benefit to those receiving treatment, and those individuals are able to apply the skills they have learned into their lives, lessening the symptoms of their disease that previously consumed their life and thoughts.

### **Significance of the Problem**

Posttraumatic Stress Disorder is prevalent in 11-30% of United States Veterans, and most cases are undertreated, due to the limited therapy options or availability (Mills, 2013). Often times, the word “therapy” gives off a negative connotation, and is avoided by many people who would otherwise benefit from this treatment. Veterans who suffer from feelings of anxiety and depression caused by Post Traumatic Stress Disorder often deny their symptoms in order to

avoid therapy and carry on the role of being a “tough” military personnel (Mills, 2013). This state of denial and fear only causes further issues, and what could have been easily treated, often develops into a more severe mental disorder, placing additional stress upon the veteran (United States Department of Veterans Affairs, 2013). Additionally, veterans with PTSD are undertreated due to poor medication compliance and high costs of obtaining the medication, which ultimately leads to further problems (Mills, 2013). Providing an entertaining, unconventional form of therapy will encourage more veterans to seek treatment without the embarrassment of attending a typical cognitive behavioral therapy session and will decrease the need for excessive medication administration.

### **Summary**

Post Traumatic Stress Disorder is a common, serious mental disorder that affects military veterans of all ages and experience levels. If the symptoms go untreated, they may progress to other disorders that may cause severe depression, nightmares, the inability to carry out daily tasks, and can commonly lead to suicidal thoughts or actions. It is crucial that various treatment options are available so that veterans have easy access to a therapy plan that meets their needs and desires. There are many therapeutic riding organizations based in the United States that provide services to veterans who have been diagnosed with PTSD. Benefits of therapeutic riding in veterans with PTSD include increased concentration and self-awareness, improved sense of well-being and normalcy, and the instillation of patience and self control (Horses Helping People MA, 2011). By reviewing studies that support these beneficial effects of equestrian therapy on relieving the symptoms of those suffering from PTSD, an evidence based protocol was developed to guide nurses to establish a plan of care that can be easily accessible and incorporated into the treatment plan of those that may benefit from this form of therapy.

## CHAPTER 2

### Review of Literature

The purpose of this chapter is to review the research and evidence regarding the effectiveness of therapeutic horseback riding in individuals with either physical or mental disabilities. Research investigating the effectiveness of therapeutic riding in veterans with PTSD is also reviewed. The research reviewed in this chapter will serve as a basis for creating a best practice approach that can be implemented in a current plan of care. This review of literature includes 11 evidence-based articles, from years 2003 to 2013, chosen from the online databases: Cumulative Index to Nursing and Allied Health Literature (CINAHL) and National Center for Biotechnology Information (NCBI), researching organizations designated to providing therapeutic riding services specifically to veterans, as well as observation at Therapeutic Riding of Tucson (TROT).

#### **Therapeutic Riding for Adults with Physical Disabilities**

This section reviewed two studies that evaluated equestrian therapy and hippotherapy in adults with a physical disability. The two studies reviewed consisted of individuals suffering from chronic back pain, stroke, traumatic brain injury, and cerebral palsy. Each disorder affected the body in a way that the individual was unable to carry out activities of daily living. The use of equine facilitated therapy and hippotherapy on these patients worked to increase the individual's body control, posture, balance, and gait function in order to increase their independence.

Hakanson, Moller, Lindstrom, and Mattsson (2009) designed a study evaluating the effectiveness of Equine Assisted Therapy in patients with chronic back pain, interfering with their ability to carry out everyday tasks. Twenty-four patients, suffering from back pain secondary to an underlying neurologic, orthopedic, inflammatory, or mental disease, were

included in the study. Each participant received a 15 minute riding session, twice a week, for 1-12 months, depending on his or her needs and endurance ability. Data was collected through the use of a questionnaire that was given to the patients before the start of therapy, and after the therapy had been completed. The variables assessed for in the questionnaire were pain, anxiety, self-confidence, body control, and sleep. Post-therapy, the questionnaire results showed that the intensity of pain and anxiety remained the same, while the duration of pain and anxiety slightly decreased, although no patient reported being “free from pain.” However, levels of self-confidence, body control, and sleep improved greatly after the treatment was complete. Long term benefits were not assessed. The patients also reported improved balance and gait, increased mobility, greater well-being, and less tension at the end of the treatment period (Hakanson et al., 2009).

A pilot study, conducted by Sunwoo et al. (2012), evaluated the effects of hippotherapy in adults suffering from brain disorders, which included stroke, traumatic brain disorder, and cerebral palsy. Eight adult patients completed a hippotherapy program, which consisted of thirty-minute sessions, twice a week, for eight weeks. The subjects’ balance ability, gait function, and emotions were evaluated before therapy, right after the completion of the therapy, and eight weeks after hippotherapy. The results showed that the subjects had significant improvement in both balance ability and gait function immediately after hippotherapy, compared to the baseline assessments. These improvements were sustained eight weeks after the therapy as well. However, there was no significant change in the participant’s emotions before and after the therapy (Sunwoo et al., 2012).

### **Therapeutic Riding for Children with Physical Disabilities**

This section reviews two studies in which hippotherapy is used to improve postural control and muscle strength in children suffering from various illnesses, such as cerebral palsy, that affects their ability to control their body. These articles are provided to allow the comparison between hippotherapy in adults and in children, both with similar physical disabilities.

A randomized clinical trial was constructed by Borges, Werneck, Silva, Gandolfi, and Pratesi (2011), which aimed to evaluate the effects of postural control in children with cerebral palsy after horseback riding. Children with cerebral palsy have “unstable control over posture and balance” (Borges et al. 2011, p. 1). The study consisted of 40 children diagnosed with cerebral palsy. 20 children were provided with horse therapy (used as the intervention group), and 20 were used as the control group and attended conventional therapy sessions. Conventional therapy sessions were conducted by working only with a physical therapist to improve postural control. The mean age of the sample was five years old. An imitation horse, called the Joba Device, was used to imitate horse riding, and was used by the children in the intervention group. The Fscan/Fmat technique was used to register maximum displacement in both antero-posterior (AP) and medio-lateral (ML) directions before and after the therapy. Results showed that improvements in body control were greater in the group that received horse riding simulation, suggesting that it is an effective technique to increase movement in children experiencing spastic diplegia. Every child in the riding group showed improvement in posture and bodily control, while only 75% of those in the control group showed some improvement. However, it must be noted that children placed in the intervention group displayed emotions of excitement, happiness, and determination, while those undergoing conventional therapy displayed no positive emotions.

Those who received horse riding therapy were determined to succeed and improve their condition, while the other children may have been receiving the same level of therapy, but lacked the motivation to try their best, slightly altering the results. Overall, this study is successful in demonstrating the effectiveness of horse riding in treating children with cerebral palsy (Borges et al., 2011).

Bongers and Takken (2012) constructed an exploratory study to examine the energy expenditure of children with moderate to severe motor impairments, after completing a hippotherapy horseback riding session. Because of their lack of access to age-appropriate physical activities due to their disabilities, “previous assessments of physical fitness in this population have revealed significant below-average values for cardiopulmonary fitness, anaerobic power, muscle strength, and agility, all of which may have a significant effect on daily physical functioning,” as well as muscle hypoactivity (Bongers & Takken, 2012, para. 1). These deficits can lead to further health complications that can reduce their quality of life, and can restrict the performance of daily activities. If energy expenditure is sufficient, therapeutic riding may be a promising form of physical therapy in patients with a motor impairment. Eleven children, ages 8-18, were included in this study, diagnosed with various motor impairments, ranging from moderate to severe. All children were wheelchair dependent, but had no contraindications to light exercise. The participants completed one, 20 minute riding session and oxygen saturation, carbon dioxide, and heart rate were measured before and after the therapy session. The results showed that hippotherapy requires moderate amount of energy expenditure due to a significant increase in heart rate and oxygen consumption after completion of the therapy. However, there were significant variations between each patient, so it is difficult to determine the intensity recommended in order to maximize fitness. It is unknown exactly how

much energy expenditure is sufficient in producing the most promising results long-term, so further studies, with a focus on long term effects rather than short term, would be appropriate to supplement the findings of this study (Bongers & Takken, 2012).

### **Therapeutic Riding for Individuals with Mental or Behavioral Disabilities**

This section describes the analysis of four studies on the effects of equestrian therapy in both children and adults suffering from mental or behavioral disabilities, such as autism, schizophrenia, or personality disorders. From the previous paragraphs, it is evident that therapeutic riding improves the symptoms and posture control of individuals with physical disabilities. This section will determine the effectiveness of therapeutic riding in decreasing the cognitive consequences, or increasing the level of positive cognitive functioning in individuals with mental or behavioral illnesses.

A study conducted by Bass, Duchowny, and Llabre (2009) evaluated the effects of therapeutic horseback riding on the level of social functioning in children diagnosed with autism. Thirty-four children, ranging from 5-10 years old, received a 1 hour/week horseback therapy session for 12 weeks. A social responsiveness scale and sensory profile was used to assess each child's behavior before and after therapy. Results of this study supported the view that horseback riding therapy is effective in improving social functioning in children diagnosed with autism. Every child improved significantly in sensory integration and effectively directed their attention to the therapy, without losing interest. They also demonstrated improved social function and sensory sensitivity when interacting with the horses, as well as with the other children. Riding the horse may have been perceived as a rewarding stimulus, causing increased motivation and social engagement, possibly because "the highly structured intervention captivated [the children's] attention and elicited a sustained level of focus" (Bass et al., 2009, p. 1266)

Cerino, Cirulli, Chariti, and Seripa (2011) conducted a quasi-experimental study to analyze the effectiveness of therapeutic horse riding in 24 patients, aged 18-40, diagnosed with schizophrenia. Each participant underwent a therapeutic horse riding session once a week, for 24 months. The BPRS (Brief Psychiatric Rating Scale) was used to evaluate psychiatric symptoms such as depression, anxiety, hallucinations, and the PANSS (Positive and Negative Syndrome Scale) was used to offer a balanced representation of positive and negative symptoms. The patients were interviewed and rated on these scales before and after the two years of therapy, and differences were assessed. After therapy, both BPRS and PANSS scores significantly decreased, showing improvement of the patient's moods, as well as a decrease in the incidence of schizophrenic symptoms. Results suggested therapeutic horse riding to be effective in successfully stimulating emotional and cognitive activity components in patients diagnosed with schizophrenia. However, there was one significant limitation that must be taken into account. The therapy took two years to complete, which allows for much time for the patient's condition to worsen, or to improve. The BPRS and PANSS scores may have changed within the patients, due to the passing of two years, and may be unrelated to the horse therapy. Additionally, generalization is limited as measures were specific to patients with schizophrenia. Overall, this study was successful in supporting the implementation of horse therapy and its ability to effectively increase the patient's mood, while decreasing the positive (hallucinations and delusions) and negative (withdrawal and flat affect) symptoms caused by schizophrenia (Cerino et al., 2011).

A similar study was conducted by Corring, Lundberg, and Rudnick (2010) to evaluate the effectiveness of equestrian therapy in patients with schizophrenia. This phenomenological study included six patients who were diagnosed with schizophrenia. Length of illness in each patient

varied and none had previous riding experience. Each patient received ten weeks of a weekly, 90 minute riding therapy session, and was interviewed after completion of the therapy. The patients' behavioral responses to the therapy were recorded and common themes in the interview were identified. The results of this study indicated that therapeutic riding was effective in improving behavioral outcomes of patients diagnosed with schizophrenia. Common themes stated by the participants in the interview were that they had fun while undergoing this therapy, they were able to effectively bond with their horse, they had increased self-confidence, and they developed positive relationships with the other study participants. The staff also noted an increased learning potential in the patients. All patients expressed and experienced positive emotions during therapy (Corring et al., 2010).

Bizub, Joy, and Davidson (2003) conducted a study that recruited adults diagnosed with a variety of mental disorders, and evaluated their outcome after completing a therapeutic horseback riding program. This study consisted of five individuals, age 26-46. Two patients were diagnosed with schizophrenia, two were diagnosed with a personality disorder, and one suffered from substance abuse. These participants completed a ten-week riding course where they learned basic riding skills and were taught how to effectively bond with their horse. Once their therapy had been completed, the subjects expressed their feelings about the therapy through an interview. Prior to receiving the therapy, four out of the five patients were fearful and timid towards the horse, but after the ten-week session was completed, all five patients expressed satisfaction with the therapy and showed positive bonding skills with their horse. The individuals reported better self esteem and more positive thoughts, as well as satisfaction with finding a fun activity that takes them out of a depressive, fearful state. Horseback therapy had a positive effect on reducing

mental disorder symptoms and feelings, among all participants that completed the therapy (Bizub et al., 2003).

### **Therapeutic Riding for Veterans with a Physical Disability**

This section discusses a study that uses hippotherapy to increase balance, posture, and mobility in veterans suffering solely from a physical disability. Equestrian therapy programs implemented for veterans with a physical disability are aimed to provide services to those injured during the war, such as those who have sustained traumatic brain injuries or wounds in combat (Wilson, 2014). There have been little studies conducted that review hippotherapy in this specific population. However, through extensive research on therapeutic riding/ hippotherapy facilities, it is apparent that veterans greatly benefit from participating in this type of therapeutic riding program (Wilson, 2014).

A case study conducted by Asselin, Ward, Penning, Ramanujam, and Neri (2012), evaluated the effectiveness of a hippotherapy-riding program in a veteran with an injured spinal cord. The subject was a 44 year-old man who suffered a C3-C4 spinal cord injury in 1988 while serving in the U.S. Air Force, and has since then been unable to walk. From 2009-2011, the veteran participated in a two-year therapeutic horseback program, and has shown great improvements such as increased balance, posture, fine-motor controls, and range of motion, as well as increased self-esteem (Asselin et al.,2012). Although he continues to use a wheelchair, he has gained more control of his legs, and has improved his muscle strength, after the therapy, and is now able to walk steadily with a walker or another assistive device. In addition, he reported to have increased self-confidence and motivation to further improve his muscle strength. He has reported a decrease in muscle spasms and an increase in muscle strength (Asselin et al., 2012).

### **Therapeutic Riding for Veterans with a Mental Disability**

According to the National Alliance on Mental Illness, “more than 100,000 combat veterans sought help for mental illness since the start of the war in Afghanistan in 2001” (2013), and the numbers of post-war mental health diagnoses are continuing to increase. Military veterans are at risk for developing mental illnesses such as Post Traumatic Stress Disorder (PTSD), drug and alcohol dependency, and depression, and severe cases can often lead to schizophrenia or bipolar disorder (National Alliance on Mental Illness, 2013). There have been minimal studies conducted on evaluating the effectiveness of equestrian therapy in veterans that suffer from a mental illness alone.

One study found reviewed the outcomes of veterans suffering from PTSD, after receiving equestrian therapy. This study was conducted by Russell (2013) and included 23 veterans, all of which had been formally diagnosed with PTSD. Five, three-day workshops were held that emphasized the basics of managing PTSD through equestrian therapy. These workshops also encouraged the participation of the veterans’ spouses, which further provided encouragement and support to the veterans. The program was held at no cost to the participants, but many remained skeptical about attending the workshops. After completion of the workshop, each individual was interviewed about his or her experience, and the results greatly supported the use of equestrian therapy in managing PTSD. One individual reported his experience to be extremely valuable, due to its unique take on treatment, peaceful-settings, and the self-meditations skills that were taught to him (Russell, 2013). Of the 23 veterans that attended a workshop, almost every one had enrolled in an equestrian therapy program near them, and are continuing to use horses to manage their symptoms of PTSD (Russell, 2013).

The equestrian riding organization Manes and Motions, set in Middletown, CT, constructed a study involving eight veterans with PTSD (Velsey, 2010). These veterans underwent a 30-minute riding session once a week for four months. However, all eight veterans have continued to participate in equestrian therapy since this study was conducted due to the benefits they have reaped from their overall experience. Among these veterans included in the study one was also chronically depressed and an alcoholic and one had also suffered nerve damage causing partial paralysis (Velsey, 2010). The participants had very different experience levels with horses, so the four-month program varied from person to person. Those that had no horseback riding experience spent time learning the basics of mounting and dismounting the horse as well as learning to control the horse, while more experienced riders quickly learned to canter or navigate an obstacle course (Velsey, 2010). Regardless of the individual's experience level, the therapeutic riding program was successful in producing a strong, calming emotional connection between the rider and the horse, and decreased episodes of anxiety attacks or nightmares secondary to PTSD (Velsey, 2010).

### **Summary**

Through analyzing the literature, most research supported the use of equestrian therapy in the general population, not specifically to veterans. However, by researching equestrian-facilitated programs and literature studying the general populations, there is sufficient evidence supporting the benefits of equestrian therapy as a whole, and can be applied to veterans who have suffered a physical or mental disability while in combat. However, more research needs to be done in order to fully support the use of equestrian therapy or hippotherapy specific to veterans. A case study examining therapeutic riding in one veteran who has suffered a physical injury has reported an increase in muscle mass, improved posture and muscle control, and

increased balance (Asselin et al., 2012). In veterans diagnosed with a mental illness, horseback-riding therapy improves self-esteem, while decreasing the frequency and severity of symptoms caused by their illness (Russell, 2013). Due to the scarcity of therapeutic riding programs, it is crucial to provide education to health care professionals regarding the effectiveness of horseback therapy found in the evidence-based articles. The review of literature provided assistance in developing a best practice approach for the use of therapeutic riding to improve the quality of life in veterans suffering from physical or mental disorders.

## CHAPTER 3

**Best Practice Protocol: The Establishment of a Therapeutic Riding Program for Veterans with Post Traumatic Stress Disorder**

The purpose of this thesis was to develop recommendations for establishing a therapeutic horse-riding program for veterans with posttraumatic stress disorder. This chapter will outline specific components that will be incorporated into the program, as well as explain the role nurses will take, both in hospitals and in therapeutic riding facilities, aiming to provide the best care for veterans who can benefit from therapeutic riding.

**Establishing Specific Therapeutic Riding Program Components**

Because PTSD is a psychological, not a physical, disability, a therapeutic riding program would provide the greatest benefit in reducing symptoms over hippotherapy (Bongers & Takken, 2012). Each study that supported the implementation of therapeutic riding in reducing PTSD symptoms encompassed different parameters when establishing the length of the program, such as the length of each session and the frequency of each session. Table 1 provides a table outlining the parameters of the specific program details. Studies conducted by Velsey (2010), Cerino et al. (2011), Corring et al. (2010), Borges et al. (2011), TROT (2013), and Asselin et al. (2012) set similar, specific parameters aimed towards relieving psychological stress and anxiety in veterans suffering from PTSD, and have proven to be successful. When establishing a new therapeutic riding program, these parameters may be followed in order to achieve similar successful results in the participants.

Recruitment of possible candidates for an equestrian therapy program will be by recommendations from veteran hospitals, therapists, or others who feel like an individual would benefit from this program (Asselin et al., 2012). Also, individuals may recruit themselves to

enroll in a program. Before beginning therapy, each prospective participant will meet with a specified team at the riding facility to interview the veteran regarding his or her issues caused by PTSD and what they hope to get out of this type of therapy (Therapeutic Riding of Tucson, 2013). Once the veteran has been accepted into the program, they will meet with a psychiatric nurse practitioner and a riding instructor to set specific skill-based goals for each patient (Velsey, 2010). For example, goals of an experienced rider may be cantering or navigating obstacles, while a beginner may have goals to get over the fear of interacting with a horse, and then learning how to mount, dismount, and walk the horse (Velsey, 2010). Then, a schedule will be made incorporating the veteran into the program at a specified time each week. If the equestrian therapy center provides services to populations other than veterans, they will often have a set day where services are provided only for veterans (Therapeutic Riding of Tucson, 2013).

On the first day of therapy, the veteran will “meet” his or her therapy horse, and begin to establish a relation with the horse. Each riding center will be equipped with several horses, each with unique personalities. This allows for the formation of a special relationship between the veteran and the horse that he or she relates to (Corring, Lundberg, & Rudnick, 2010). Horses are receptive to human interaction and human emotions, and allow for a non-threatening relationship that both increase the individual’s confidence and facilitate a sense of connectedness (Corring et al., 2010).

Once the veteran has established a connection and relationship with the horse of their choice, they spend their sessions learning to ride. Once a horse has been chosen and a relationship has been established, the veteran will begin to attend once a week, 60-minute sessions, until he or she has achieved each goal comfortably (Velsey, 2010). Then, new goals will be set and the process continues. The length of the program is based on a quarter system,

where the year is broken into four quarter. The veteran will pay for the services per quarter, and new goals will be set at the beginning of each quarter. The number of quarter a veteran completes varies from person to person, either until the veteran decides to discontinue receiving therapy, or the veteran may continue treatment for the rest of their lives (Velsey, 2010).

Table 1.

*Parameters of Therapeutic Horseback-Riding*

Element of Program	Intervention	Citation
Admitting process	<ol style="list-style-type: none"> <li>1. Veterans are recruited either by self-recommended or recommended by others</li> <li>2. Candidates meet with a set team at the riding center to discuss individualized issues in his or her life</li> </ol>	(Therapeutic Riding Of Tucson, 2013)
Steps in program	<ol style="list-style-type: none"> <li>1. Goals are set</li> <li>2. The veteran “chooses” and “meets” a horse that will be used in their sessions.</li> <li>3. The veteran learns the basic of horseback riding until first goal is met</li> <li>4. New goals are set and the process continues.</li> </ol>	(Borges et al., 2011) (Velsey, 2010)
Length of program	The length of time the veteran attends the program varies from person to person. The veteran will attend and pay per quarter (4 quarters per year-3 months per quarter) and may continue to receive treatment until the individual decides to end sessions.	(Asselin et al., 2012) (Cerino et al., 2011) (Therapeutic Riding Of Tucson, 2013) (Velsey, 2010)
Length of session	Each session will last 60 minutes.	(Corring et al., 2010) (Therapeutic Riding Of Tucson, 2013) (Velsey, 2010)
Frequency of sessions	Veterans will go to sessions once a week.	(Cerino et al., 2011) (Corring et al., 2010) (Therapeutic Riding Of

		Tucson, 2013) (Velsey, 2010)
Type of therapy	Therapeutic riding for veterans with no physical disability. Hippotherapy may be considered if the veteran had PTSD as well as a physical disability.	(Bongers & Takken, 2012) (Cerino et al., 2011) (Corring et al., 2010) (Horses Helping People, 2011) (Mills, 2013)
Team approach used to provide therapy	1. Mental Health Therapist/ Psychiatric Nurse Practitioner 2. Occupational Therapist 3. Certified Riding Instructors 4. Volunteers 5. Registered Nurse	(Asselin et al., 2012) (Velsey, 2010)

### **Health Care Professionals Using a Team Approach**

Establishing a therapeutic riding program will require the help of five different certified health professionals, each holding specific duties in order to provide optimum care to all patients participating. A mental health therapist or psychiatrist will work together with the veteran to set specific goals and objectives to guide the therapy (Asselin et al., 2012). An occupational therapist will be present to improve the patient's fine motor control, attention skills, and activities of daily living (Asselin et al., 2012). Riding instructors are specially trained and certified by The North American Riding for Handicapped Association (NARHA). These instructors train the veterans in proper horsemanship skills, and assist them in reaching the goals they have set (Asselin et al., 2012). They ensure that all participants are riding in a safe environment and are able to control the horse if a problem arises. Community volunteers will groom the horses and act as side-walkers for the veterans undergoing therapy. Registered Nurses will also play an important role in the development of a therapeutic riding program both at the therapeutic riding center, as well as in surrounding hospitals or clinics (Asselin et al., 2012).

### **The Role of the Nurse at a Therapeutic Riding Center**

Registered nurses are encouraged to participate in therapeutic riding programs and utilize their rehabilitation nursing skills, regardless of their professional background or level of experience with horses. Nurses with minimal horseback riding experience can serve as a side walker, and will be responsible for ensuring that the rider is comfortable and safe (Asselin et al., 2012). If the veteran receiving therapy is unfamiliar with riding a horse, the side walker remains on the side of the horse, and holds onto the legs of the rider and assists in saddle position changes to ensure that the rider maintains balance and safety (Asselin et al., 2012). Nurses who have experience with riding horses serve as a horse leader and work with the riding instructor to establish a safe riding environment, aid in handling the horses during therapy, making sure the veterans remains comfortable and confident in the current therapy (Asselin et al., 2012).

Whether a side walker, or a horse leader, there are certain responsibilities that nurses hold while working at a therapeutic riding center. Before therapy begins, the nurse may help groom the horse and collect the necessary riding equipment for the upcoming session. Once therapy has begun, they may suggest balancing techniques, riding methods, and the utilization of certain props that may be beneficial to specific patients, as well as serving to facilitate proper therapeutic interaction techniques between the patient and the horse (Asselin et al., 2012).

Additionally, nurses are responsible for providing the veteran with valuable information and teaching in order to enhance their therapy experience. The nurse uses teaching opportunities in the therapeutic riding center to help the veteran cope with his or her illness, such as providing information about the benefits of therapeutic riding on PTSD, as well as educating the veteran on the importance of medication adherence.

### **The Role of the Nurse in Other Healthcare Settings**

Nurses not only play a role in the treatment of veterans with PTSD undergoing therapeutic horseback riding by physically being at the center, but they can also be involved from any other healthcare setting. Nurses in hospitals, clinics, or offices, specifically psychiatric and rehabilitation nurses, can be informed on the benefits and success of using therapeutic riding as a form of treatment for veterans with Posttraumatic Stress Disorder. They can also provide referrals to near-by riding facilities, if they believe that it may be beneficial to the veteran. When caring for a patient with PTSD, or any other disorder or disease that may benefit from therapeutic riding, the nurse can provide the patient with specific information and directions to the nearest riding facility.

Nurses can also teach therapeutic riding basics, benefits, and program locations to other health care colleagues, so that they may pass that information to future patients they may care for. Opportunities for teaching can arise in meetings, seminars, or conferences, and the nurse can discuss the benefits of therapeutic horseback riding through PowerPoint, podium, or poster presentations (Asselin et al., 2012).

### **Summary**

Implementing a therapeutic riding program for the treatment of veterans with Post Traumatic Stress Disorder involves more than just establishing parameters. A therapeutic riding program must bring together and utilize the skills of several health care professionals, who work together to create an evidence based program, to improve the outcome and reduce the symptoms of veterans suffering from PTSD. Nurses on the site of the riding facility, as well as from other health care settings play a crucial role in teaching the patients the benefits of therapeutic riding, and to encourage veterans to utilize this service.

## CHAPTER 4

## Implementation

This chapter provides a hypothetical implementation process for the establishment of an equestrian therapy program aimed at providing services to veterans with posttraumatic stress disorder (PTSD). Therapeutic Riding of Tucson (TROT) is an organization that provides equestrian services to individuals of all ages, with a wide variety of physical, mental, and behavioral disabilities that is based in Tucson, Arizona. Once a week, TROT holds therapy sessions specifically for veterans with any physical or mental disability. However, most of the veterans who receive therapy from TROT suffer from a physical disability, such as amputations or partial paralysis, and very few suffer only from a mental illness. Although veterans with posttraumatic stress disorder are invited to participate in the services provided by TROT, many are unwilling to partake in therapeutic riding, due to lack of knowledge of services and skepticism about equestrian therapy as treatment. Creating a therapy program aimed specifically towards those with PTSD may address the misconception that equestrian therapy can only be used for physical disabilities, and may be therapeutic for those living with this PTSD.

The Diffusion of Innovations Theory, developed in 2003 by Everett Rogers, is a five-staged process that provides a framework for adopting and implementing new ideas or practices. This theory will guide the implementation of an equestrian therapy program for veterans with PTSD in this chapter. The five stages of this theory are knowledge, persuasion, decision, implementation, and confirmation (Sahin, 2006). Confirmation, however, will not be discussed in the chapter, and will be addressed in chapter five.

### **Knowledge**

In the knowledge stage, “an individual learns about the existence of innovation and seeks information about the innovation” (Sahin, 2006, p. 16). Employees at TROT, as well as health care professionals in surrounding hospitals, particularly the Hospital of Veteran’s Affairs (VA), must be educated on the prevalence, treatment options, and signs and symptoms of veterans with PTSD. When veterans with PTSD are identified, they can receive appropriate treatment. They can therefore be aware of those that may suffer from this illness, and will have the proper resources to provide to the veteran. Being knowledgeable of the common and successful treatments for PTSD, the health care professionals can refer the veterans to a therapy program that would work best for them, and one option is the equestrian therapy at TROT. This education can be provided by TROT to hospitals and services for veterans through pamphlets, and providing brief informational sessions to relevant employees. In addition, communication with any outside resource must be initiated. For example, TROT works closely with the Wounded Warrior Project, an organization that works to honor, empower, and provide services to veterans who have been wounded or affected by battle (Wounded Warrior Project, 2013). This program serves veterans across the United States, and refers veterans to TROT if they are applicable. Raising awareness of this program to the Wounded Warriors Project will provide them with an additional resource to guide veterans with PTSD to treatment.

Also, it is important that veterans themselves become knowledgeable about PTSD and equestrian therapy as a treatment option. PTSD often goes untreated or unnoticed, due to the veterans’ or health care professionals’ inability to recognize the signs and symptoms. Veterans may ignore the signs of PTSD, in an attempt to convince themselves that nothing is wrong, and that they do not have a problem (Mills, 2013). Handing out materials, such as pamphlets,

regarding treatment centers and helpful organizations to all veterans will encourage them to seek treatment, and will provide them with education, contact information, and service options for any need they may have.

While still in the stage of knowledge, and before any actions are taken towards program implementation, it is necessary to take into account all financial considerations that will effect the implementation of this program. It is very important to ensure that the funds are available before beginning to implement the program, and anticipate any major budget changes. There are many supplies needed to implement such a program, and supplies associated with therapeutic riding can be extremely costly. Additional horses may need to be purchased or rented, as well as all supplies that must be included. These supplies include saddles, bridles, reins, saddle pads, stirrups, bits, lead ropes, girths, surcingle, and fleece. Horses can cost anywhere from \$500 - \$10,000+, while these supplies needed for one horse can cost over \$1,000 (Therapeutic Riding of Tucson, 2014). TROT is an existing program so many of these items would not need to be purchased. However, riding instructors and employees may need extra training to care for this group of individuals, as well as added payment for their work. It will also cost to print pamphlets, educational supplies, and advertising materials needed to give to hospitals, outside organizations, and to veterans themselves. There may also be an additional cost to provide someone, such as a TROT employee, therapeutic riding expert, or a posttraumatic stress disorder expert, to go to hospitals and provide the employees with the informational sessions.

### **Persuasion**

In the persuasion stage, individuals have the “opportunity to shape his or her attitude after he or she knows about the innovation” (Sahin, 2006, p. 16). Staff involved form opinions on the project, before any actions are taken towards implementation (Sahin, 2006, p. 16). This stage is

similar to the stage of knowledge, but takes it one step further. Communication to nearby hospitals and organizations will be increased and pros and cons of the program implementation will be evaluated. All potential problems of the program will be further investigated by TROT, and compromises may have to be made. Also, time slots within the week at TROT must be set aside and agreed upon for the transition into implementing this program. This will allow for a smoother presentation to the TROT board, which will be discussed further in the next step of the Diffusion of Innovation Theory.

Additionally in this stage, employees with appropriate training and skill levels need to be recruited, and their salaries need to be discussed, in order to implement such a program. Current TROT employees may be great candidates for employment because they have most of the necessary training for handling horses and providing individuals with therapy that is beneficial based on their specific circumstances. Also, the hiring of a Psychiatric Nurse Practitioner will occur in this stage, as TROT does not currently have one employed. Any additional training specific to providing services to veterans with PTSD must need to be considered and mentioned to the prospective employees. If outside employees need to be hired, this will occur after the program has been approved.

### **Decisions**

In the decision stage of the Diffusion of Innovation Theory, the program proposal is presented to the decision-makers, which in this case is the TROT board of directors, and the proposal is either accepted or rejected (Sahin, 2006). All potential setbacks of the program have already been acknowledged and proper adjustments have been made. The budget has been reviewed, funds are sufficient, and the board will make the decision of approval or rejection

basted on the cost versus benefit of the program. If the proposal is accepted, the board has the power to make any additional adjustments to the cost or program parameters.

The TROT board of directors is a small group of individuals appointed by staff to make decisions regarding the economics, efficacy, and evaluation of each service provided. Within the board of directors is an executive director. The executive director has the final say in all decisions that are to be made and serves as a leader to all individuals on the board, as well as all employees. Also included on the board is the program director. The program director oversees all programs and evaluates the program effectiveness. The board of directors meets once a month on the site of TROT. At these meetings, the program director creates a report on all programs, including new proposed programs, for the month and presents the information to the board. Any specific issues that need to be brought to the attention of the board are also discussed at each meeting.

The proposal for the implementation of the program that provides equestrian therapy to veterans with PTSD must be presented to the board of directors, specifically the program director. This project will be presented either at a board meeting, or at another convenient time, through the use of a poster or PowerPoint. Once the project has been presented, it is assumed that it will be discussed among the board, and a follow-up will occur soon after. Finally, the executive director must approve the program, and plans for implementation will begin.

### **Implementation**

In the stage of implementation, “an innovation is put into practice” (Sahin, 2006, p. 17). There is always a degree of uncertainty when implementing a new program, however, the program coordinators must collaborate with the board to work through any problems that may arise (Sahin, 2006). All needed supplies must be purchased prior to the program start date, as

well as providing any training that needs to be given. All certified riding instructors and volunteers that will be working with these veterans will need to be trained by an expert on veterans with posttraumatic stress disorder (PTSD), such as a psychiatrist or Psychiatric Nurse Practitioner (NP). They will receive in-depth information on the effects of PTSD on the brain, signs and symptoms of PTSD, and behaviors that are to be expected from one with PTSD, in order to prepare them for working with these clients. Training will occur over three, four-hour sessions. Veterans with PTSD are a very different group of people, due to their frequent outlasting and episodes. All employees and volunteers that will come in contact with this group will need to have a deep understanding on how to work with these individuals. In this training session, a psychiatrist or Psychiatric NP will teach the employees and volunteers what to expect when working with individuals with PTSD, how to properly interact with them, and the evidence-based practice components behind the establishment of this program. Once a designated time period has been set apart for this program, all prospective employees, volunteers, and those receiving therapy will come together, and the program will begin, following the protocol of program parameters discussed in previous chapters. After the first session, all employees and board members will come together and discuss what went well and what needs to be modified. All changes will be implemented at the next session time, and the process continues until the program becomes stable and little further changes are to be made.

### **Summary**

In order to implement an equestrian therapy program at Therapeutic Riding of Tucson (TROT) to veterans with posttraumatic stress disorder (PTSD), the Diffusion of Innovation Theory, created by Everett Rogers, is used as a framework. This theory is comprised of five steps: knowledge, persuasion, decisions, implementation, and confirmation. During the

knowledge stage, information is given to all relevant professionals and prospective participants, and the benefits to the program are discussed. In the stage of persuasion, increased communication occurs between professionals, and attitudes are formed towards the program. In the stage of decisions, the proposed project is presented to the board of directors, and a formal decision is made as to whether or not the program will be successful. During implementation, the program is put into practice, and appropriate steps will be taken to better the program. By close follow of these five steps, a proposal can be efficiently developed, evaluated, and implemented.

## CHAPTER 5

### Evaluation

This chapter addresses the evaluation of the best practice protocol of establishing an equestrian therapy program for veterans with posttraumatic stress disorder (PTSD). Aspects of the fifth and final step of Everett Roger's Diffusion of Innovation Theory, confirmation, will be used to evaluate the program, after its implementation. Also in this chapter, strengths and limitations of the research, as well as ideas for future research will be discussed.

### **Confirmation**

In the confirmation stage, the newly implemented program is evaluated and its effectiveness is determined (Sahin, 2006). After the start of the program, it is expected that all participants will undergo one quarter of therapy. At TROT, each quarter is about three months, and after the end of each quarter, the participant's experiences will be evaluated. Because it may take much longer than one quarter for results to be shown, this stage of confirmation should be continually repeated, and the effectiveness of the program should be evaluated on a quarterly basis. Also, it is helpful to keep in mind that each individual will respond differently to treatment, so it is unrealistic to assume that results should be shown within a certain time period.

Evaluating the efficacy of this program is very difficult, seeing that there is no universal, objective way to evaluate the severity and improvements in an individual with PTSD. Evaluation is very subjective, and is specific to each individual. The most effective way for evaluation would be to conduct interviews with the participants before beginning therapy, and after each quarter of therapy. The interviewer, a psychiatric nurse practitioner or a certified horse trainer, would ask questions regarding the participant's feelings, emotions, occurrences of episodes, and any other information pertinent to their condition. At subsequent interviews, the

same interviewer will ask similar questions and assess the rider's progressions. Although there is no universal, completely accurate way to assess the severity of PTSD, there is a tool called the PTSD checklist that is often used to diagnose and evaluate individuals with PTSD. The PTSD checklist is a six-item screen that used in the clinical setting that allows the individual to self-rate their occurrences of anxiety attacks, disturbing thoughts, and the avoidance of certain situations (United States Department of Veteran Affairs, 2013). This tool will be used as part of the evaluation and given to the individual on a quarterly basis, in conjunction with the subjective interviews. If the rider feels he or she is feeling less depression or has fewer episodes, or if the PTSD checklist shows symptom improvement, it may be safe to say that the therapy is having a positive impact on the veteran's life. If no change is noticed, that does not mean that the therapy is ineffective; it may mean that he or she just needs more time and therapy. The client will then be asked about their overall satisfaction with the program, and if there are any proposed changes that they would like to see occur.

Assuming all program components that were discussed in chapter three were followed, the program can also be evaluated by the extent of goal accomplishments for each individual. Recall in chapter three where goals are set for each individual participant, and they work towards that goal until it is completed, and then the process continues. If the riders are successfully completing their goals in a timely manner, it is assumed that the program is running smoothly and it will be determined if the riders are feeling a sense of accomplishment. Additionally, the original number of veterans who enrolled before the start of the program will be compared the number of veterans who completed a quarter to determine the drop out and adherence rate.

Also needing to be evaluated is the process and components that were originally proposed to the board, and if the actual program implemented adhered to the proposed process.

This includes the number of employees and volunteers involved, the length and amount of sessions, and the process of establishing and accomplishing goals for each individual. If so, was the program successful, or do slight changes need to be made? A survey will also be given to all employees and volunteers involved in the program asking for their personal feedback about the program, and anything that they experienced that may need adjustment.

As an additional process of evaluation, the board will analyze the demographics of the individuals undergoing the equestrian therapy program. The total number of veteran referrals will be compared to the number of veterans who signed up for the program to see the percentage of those who did not follow through with therapy. Also, specific characteristics such as age, race, and gender, of the individuals undergoing therapy will be analyzed, in order to determine if this program is appealing to a specific population or to a wide variety of individuals.

Evaluation of the program will occur during the board meetings, including any employee who wishes to attend. A compilation of all interviews will be reviewed on a quarterly basis by the board of directors during their meetings. Also discussed at the meetings should be the evaluation of the budget. Since the implementation of the program, the approved budget should be compared to the actual budget, and any appropriate changes should be made accordingly. This is also a means of evaluation because it determines any aspect of financials that were not accounted for during the previous stages.

### **Strengths/ Limitations and Recommendations for Future Research**

The main strength in the proposal to implement this equestrian therapy program is that there is sufficient evidence that supports the use of horses as therapy. There are many scholarly journal articles and organizations that support using therapeutic riding for any individual, with a wide variety of physical, mental, and behavioral disabilities. However, there was little research

for equestrian therapy as a treatment for PTSD specifically, but the large amount of research that encourages this therapy in individuals with other mental illness, makes it applicable to this target population. Another strength of this project is the demand for a treatment option for PTSD, which coincides with the increasing rates of diagnosis. Offering this therapy option will allow veterans to receive treatment in a fun way, either in conjunction with or instead of medication use or conventional therapy.

The primary limitation of this project is the fact that it is difficult to evaluate. Because PTSD it is such a subjective experience that varies from person to person, there is no objective way to evaluate progress and response to treatment, other than by patient report and interviews. Also, there is no specified time frame that is appropriate for results to begin to appear. Evaluation is a difficult process that can only be determined through implementation of the program and waiting to measure the response of the individuals undergoing therapy. Another limitation for the implementation of this project is the large demand of resources needed. It is very expensive to implement if there are inadequate supplies already on hand. Also, this program requires staff with adequate knowledge and skills required to work with veterans with PTSD, as well as with the horses.

Recommendations for future research would be to evaluate the efficacy of equestrian therapy as an adjunct to conventional therapy and/or medications. Each form of treatment has been researched independently, however, no research was found comparing or combining any of the treatments. This will guide the veterans in choosing what form of therapy would be most beneficial for them, and treatments can be recommended based on the severity of their illness.

### **Summary**

The purpose of this thesis was to develop an evidence-based protocol for the development of an equestrian therapy program specific for veterans with posttraumatic stress disorder (PTSD). A background of equestrian therapy and its benefits to many individuals, including adults, children, and those with a variety of different physical, mental, or behavioral illness was discussed. Also discussed was the background of PTSD and its effects on those suffering from this disorder. By reviewing multiple evidence-based articles supporting the use of equestrian therapy for the treatment of these various populations, it is clear that veterans with posttraumatic stress disorder can greatly benefit from this. An evidence-based program was developed, with specific parameters and inclusion criteria, intended to be implemented at Therapeutic Riding of Tucson (TROT). The steps taken to hypothetically implement the program were gone through using Everett Roger's Diffusion of Innovation Theory, ending with potential evaluation of the program, and its benefits to the veterans with PTSD who are receiving equestrian therapy as treatment.

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