Effectiveness of Equine-Assisted Services Treating Veterans with PTSD Symptoms

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Abstract

Empirical research supports the effectiveness of equine-assisted services (EAS) and as a treatment for veterans with post-traumatic stress disorder (PTSD). However, the number of studies examining these modalities are sparse. The purpose of this study was to address the need for research as there was a lack of empirical evidence using EAS as a treatment for veterans with symptoms related to PTSD. The research was composed of a single design study. The participants (veterans) were assigned a group in the AM or PM, depending on their availability. They participated for 1 hour a week for eight weeks in an EAS setting. Participants completed four assessments: pre-treatment, mid-treatment, post-treatment, and a two-month follow-up. The assessments consisted of the PTSD Checklist for DSM-5 (PCL-5), Quantitative EEG (qEEG) brain mapping, and weekly pre/post-lesson surveys. The analysis of this data helped determine that EAS is an effective treatment for veterans with PTSD, and the testing instruments used were efficient.

Keywords: Equine-Assisted Service, Veterans, PTSD Symptoms

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Chapter I: Introduction

After several years of working as an adaptive riding instructor, the researcher chose this topic and has had the privilege of working with active-duty military and veterans in multiple settings. While the researcher was working with the Idaho Army National Guard during her practicum, she began to wonder if Equine-assisted services (EAS) would be effective in treating veterans with post-traumatic stress disorder (PTSD). This led to the creation of the research question and this study focused on EAS's effectiveness as a treatment for veterans suffering from PTSD symptoms.

Background of the Problem

Research on EAS includes partnering the human and equine to improve the client's physical, cognitive, and emotional needs (PATH International, n.d.). EAS is a new terminology that was put into effect in the Fall of 2020. Prior to this, EAS was known as equine-assisted activities and therapies or EAA/T (Alm et al., 2020). EAS, as a treatment option for veterans, has not been an accessible treatment alternative until recently. However, several articles have been published over the past decade, along with several unpublished dissertations and theses on EAS and treating veterans (Masini, 2010). Though EAS has become more popular as a form of alternative treatment, it has limited empirical research due to the fact that it is an alternative form of therapy, can be costly, and is not widely used (Mueller & McCullough, 2017). More research is now being funded through the Horses and Human Research Foundation. They currently fund one research grant up to $50,000 per year (Bachi, 2012; Russell, 2013). Some limitations are the lack of control groups, small sample sizes, external factors, other therapies, and other variables (Bachi, 2012). Thus, more research is required.

Statement of the Problem

According to the U.S. Department of Veterans Affairs Office- VA.org (2020) annual report, it was reported in 2018, that an average of 17.6 veterans completed suicide each day in the U.S., the need to find a treatment method that is best suited for them is vital (VA, 2020). A small number of veterans seek help with PTSD with the VA; many of them would rather use a private provider (Hundt et al., 2018). Some treatment barriers are having a negative experience with the VA staff and providers, trouble navigating the VA systems, poor access, stigma, and dropout rate (Hundt et al., 2018; Steele, Wood et al., 2018). Thus, veterans are seeking alternative forms of treatment because of the barriers (Ferruolo, 2016). Because of these barriers, veterans are not getting the treatment that they need. The researcher found this information essential to note that alternative forms of treatment need to be made more accessible to veterans because it shows that some veterans would prefer not to seek treatment if their only option is to go to the VA.

The researcher has seen the EAS field has become more popular because horses help break down barriers due to the horse's high sensitivity and responsiveness to human behavior. The researcher has also seen EAS as a benefit for clients who do not respond to mainstream therapies; they cannot connect with a therapist, need a different learning platform, or many other reasons.

Significance to Social Work

Because of the barriers that veterans face with treatment, there is a need for social workers to advocate for alternative forms of treatment. Social workers' foundation is based on social change. Thus, advocating for a policy change that allows alternative

forms of treatment is necessary (NASW, n.d.). This study on EAS as an alternative form of treatment used to fill the treatment gaps will assist in future policy change.

Even if a veteran is comfortable going to the VA for treatment, talk therapy can be retraumatizing for veterans with PSTD symptoms; therefore, alternatives treatments are necessary. EAS is becoming more popular as an alternative to traditional talk therapy with proven results. EAS does not require a person to talk when working with the horse, which is ideal for individuals who are hesitant to talk therapy or other therapies offered at the VA. The researcher knows from experience when an individual and horse are together; a somatic experience may happen that regulates their nervous system. Once the nervous system is regulated, the individual is open to healing.

Research Question

Are Equine-assisted services effective in treating groups of veterans with PTSD symptoms?

Limitations

As with any research, limitations are present in this study. First, external factors were being taken into consideration when operating in a facility that had individuals present who were outside of the study. Even with initiating steps to minimize distraction, distractions still occurred (e.g., outside noise, horses coming and going, individuals outside of the study coming and going). These distractions had the potential to interrupt the process that was happening with the clients and horse. This happened with three participants when a horse boarder entered the facility and interrupted the session. The participants may have regressed instead of moving forward in the process, which could have affected their post-survey assessment results. Second, the veteran participants may

have been influenced by personal variables (e.g., mood, time of day, other therapies, medications). These variables could have altered the validity of the assessments given. Third, circumstances outside of the participant's control may have caused them to miss a session. Missing a session can strain the group's cohesiveness and alter the accuracy of the data received.

Another limitation to mention is the researcher's bias. The researcher has an extensive background working with horses both at home and at work. Through this experience, the researcher has seen the benefits of the human and equine bond. With this said, the researcher used quantitative data to determine if EAS was an effective form of treatment for veterans with PTSD symptoms. Using data gathered from testing instruments ensured the assessments' validity, which may reduce the researcher's biases on the influence of the outcomes.

Scope and Delimitations

The scope of the study was defined geographically to Eastern Idaho. Note the researcher did not limit participants who resided outside of this area if they could commit to being in the area for their weekly session. The researcher chose this region for the study because an EAS program in Eastern Idaho was willing to collaborate on the study. This would be considered a delimitation of the study due to the geographic location where the study is taking place; it may limit the number of participants who volunteer for the study.

Another delimitation was that participants had to pass an eligibility screen to be eligible for the study. Some disqualifying diagnoses may have limited their physical ability to participate, allergies, a history of animal abuse, and commitment to study

duration. The researcher discussed these factors thoroughly before determining a participant did not meet the study's criteria.

Definitions

Adaptive Riding. Horseback riding is taught by a specially trained instructor who adapts lessons and equipment to fit the needs of individuals with special needs (AHA, Inc., 2018).

Best Practice. The term best practice is used to reflect a modality, methodology, or benchmark, which has been shown through research to be reliable and have desired results (AHA, Inc., 2018).

Diagnostic and Statistical Manual of Mental Disorders (DSM). The DSM manual assists in diagnosing, treating, and researching diagnoses by defining, classifying, and coding diagnoses in the current DSM-5 manual (AHA, Inc., 2018).

Equine. The term equine is a general description of a horse, pony, mule, or donkey (AHA, Inc., 2018).

Equine-Assisted Services (EAS). EAS is a term used by professionals who work with a human and horse to incorporate various activities or therapies to achieve a specific goal (Alm et al., 2020).

Equine-Facilitated Psychotherapy (EFP). EFP is a service provided by a licensed mental health professional that partners with an equine to enhance the clients' treatment within the professional's scope of training (AHA, Inc., 2018).

Hippotherapy (HPOT). Hippotherapy is used by a licensed occupation therapist, physical therapist, and speech-language pathology professionals, by using the equine as a tool during a treatment session (AHA, Inc., 2018). The professional uses the equine

movement to manipulate and engage sensory, neuromotor, and cognitive systems to meet client goals (AHA, Inc., 2018).

Post-Traumatic Stress Disorder (PTSD). The American Psychological Association defines PTSD as anxiety that develops after a traumatic event, such as combat, a crime, accident, or natural disaster (American Psychiatric Association, n.d.). Symptoms may include intrusive memories, flashbacks, nightmares, avoidance, and anxious feelings developed after the event (American Psychiatric Association, n.d.).

PTSD Checklist for DSM-5 (PCL-5). The PCL-5 is a self-reporting measurement tool that assesses PTSD symptoms. The tool consists of 20 questions that assess the 20 symptoms from the DSM-5 (U.S. Department of Veterans Affairs, n.d.-b).

Quantitative EEG (qEEG). qEEG is an analysis of an electroencephalography (EEG) of the brain (qEEG Support, n.d.). Also known as brain mapping.

Veteran. A veteran is any person who served in any branch of the United States military who had not been dishonorably discharged (VA.org, n.d.).

Summary

In summary, the researcher will determine if EAS is or is not effective as a treatment for veterans with PTSD symptoms. The background of the problem and a statement of the problem show the need for further research. Three limitations and two delimitations of the study have been noted. The significance of social work has been discussed, and terms that may not be common knowledge have been defined.

Chapter II: Literature Review

The researcher did an extensive literature review. The years covered in the research span from 2007 to 2020, though research dates back further, the researcher kept

the article reviews' span to the last 20 years. The following databases were used: EBSCO, ProQuest, Google, Human-Animal Interaction Bulletin, and the Equine Assisted Interventions Repository. The terms the researcher searched are equine-facilitated psychotherapy, equine-assisted activities, adaptive riding, veterans, PTSD, and trauma. This chapter is organized topically as follows: equine-assisted services, equine-facilitated psychotherapy, hippotherapy, adaptive riding, equine-assisted activities, and therapy organizations, veterans, post-traumatic stress disorder, social work, theoretical approach, research, and conclusion.

Through this extensive review, the researcher will describe variations of EAS. The researcher will review veterans' psychological problems and how social workers can use EAS when treating veterans. Many veterans who have PTSD find EAS peaceful, unlike their time in the military, during which deployment meant they were put into non-stop and high-stress situations (Asselin et al., 2012; Burton et al., 2018; Russell, 2013). There are over 1000 programs in the United States that provide EAS (EAGALA, n.d.; PATH International, n.d.). Finding alternative forms of treatment has become popular in today's culture because therapists find that not everyone responds to the same treatment.

EAS can increase self-confidence, self-esteem, and self-control (Johansen et al., 2016; Voelpel et al., 2108). Horses read energy and not minds; they give honest and non-judgmental feedback (Voelpel et al., 2018). The horse has a way of bringing out a person’s authentic self, they tend to be excellent lie detectors, and they build relationships that are non-judgmental (Cody et al., 2011; Waite & Bourke, 2013). This newly formed relationship is the foundation to engage clients in the early stages of an EAS program (Waite & Bourke, 2013).

Veterans

With the increasing numbers of veterans being diagnosed with psychological disorders such as PTSD and traumatic brain injuries, there is an urgent need to decrease symptoms (Johnson et al., 2018). The number of veterans who have PTSD, as reported by the VA, is 14% from the Iraq and Afghanistan war, 10-12% from the Gulf war, and nearly 30% from the Vietnam war (Potter, 2017). Research has also shown that spouses of veterans who have psychological disorders are more likely than not to develop one themselves (Romaniuk et al., 2018).

Psychological disorders in veterans have increased by 65% since 2001 (Ferruolo, 2016). PTSD can make civilian life more difficult; individuals with PTSD may often experience anxiety, flashbacks, and emotional numbing (Johnson et al., 2018). A decrease in mental health can lead to substance abuse, suicidal ideation, poor physical health, and decreased quality of life (Romaniuk et al., 2018).

Post-Traumatic Stress Disorder

According to the American Psychiatric Association, PTSD can occur for individuals who have experienced or witnessed traumatic events. In the past, PTSD was thought to occur only in veterans. However, it can occur in anyone with no limitations to age, race, gender, or culture (American Psychiatric Association, n.d.). Nearly 3.5% of Americans will be affected by PTSD (American Psychiatric Association, n.d.). Many people think an individual has to experience the event firsthand, when it could be experienced from secondhand information, such as learning about the violent rape of a loved one. First responders often experience PTSD from secondary exposure to their victims' experiences (American Psychiatric Association, n.d.).

PTSD symptoms can vary in severity, including intrusive thoughts, avoiding reminders, negative thoughts and feelings, and arousal and reactive symptoms (American Psychiatric Association, n.d.). Criteria for diagnosis may be found in Appendix A, Diagnostic and Statistical Manual of Mental Disorders, 5th Edition: DSM-5 (American Psychiatric Association, 2013). Symptoms generally develop within three months of the event and persist for one month or more, making life function difficult. Other symptoms, such as depression or substance abuse, and many other physical and mental health problems, may occur when an individual has PTSD (American Psychiatric Association, n.d.).

There are various treatment types for individuals with PTSD; not every form of therapy fits every person. Not every individual will require treatment for PTSD; for some individuals, the symptoms may go away over time (American Psychiatric Association, n.d.). However, those who need treatment need to get it immediately; the longer an individual goes without treatment, the longer it will take for symptoms to improve. Research has shown the following methods to improve PTSD symptoms effectively: cognitive processing therapy, prolonged exposure therapy, group therapy, medication, and other treatments, including complementary and alternative therapies such as acupuncture and animal-assisted therapy (American Psychiatric Association, n.d.).

Equine-Assisted Services

In the 4th millennium B.C.E., the Greeks were known to partner with horses to raise the sick's spirits and relieve the afflicted (Lanning & Krenek, 2013; Trenton & Sneed, 2018). Though it appears that EAS was not seen worldwide in literature until the 1960s, it is reported that in 1792 animals helped individuals with mental illness, and

adaptive riding started in 1875 (Bachi, 2012; Klontz et al., 2007; Lanning & Krenek, 2013). In 1969, the North American Riding for the Handicap Association (NARHA) was formed to focus on physical disabilities; since then, they have expanded their scope, including physical, cognitive, and mental disabilities (Masini, 2010). As of 2011, NARHA became known as PATH Intl.- Professional Association of Therapeutic Horsemanship International (PATH International, n.d.). The equine-facilitated mental health association (EFMHA) was formed in 1996, which partnered humans and equines while treating psychological and mental health disorders. EFMHA joined NARHA in 2009 (Masini, 2010; PATH International, n.d.). In 1999, EAGALA equine-assisted growth and learning association was formed; they only offer unmounted programs (Masini, 2010).

Equine-Facilitated Psychotherapy (EFP). Equine-facilitated psychotherapy is also known as equine-assisted psychotherapy or equine-assisted therapy. EFP uses a mental health professional who may or may not use an equine specialist to partner with the horse to provide psychotherapy to the client (Masini, 2010; PATH International, n.d.). EFP is widely used; however, more research needs to be done to be considered best practice (Bachi, 2012). EFP improves the client's social, emotional, and cognitive functions (Bachi, 2012; Burton et al., 2018). This experiential approach allows clients to learn about themselves through the horse’s reactions (Clark, 2020).

The researcher knows from experience that in a typical session, the client may groom the horse, work in the round pen, go through an obstacle course, use a lead line, or the client may use their own body language to guide the horse without touching the horse. EAS may be used with individuals, groups, families, team building, or organizations

(Masini, 2010). The client can use the horse as a canvas to project their story without fear of judgment or ridicule. The client can be their authentic self with the horse and become more aware of themselves (Rodriguez, 2019).

Hippotherapy. Hippotherapy is another form of EAS, which allows the client uses the horse's movement to improve neuromuscular stability and sensory processing through a variety of exercises while on the horse (Aldridge et al., 2016). These therapies are evidence-based and must be performed by licensed physical therapists, occupational therapists, or speech therapists (American Hippotherapy Association, n.d.). The therapist will generally use hippotherapy and other modalities in the patient's care plan (American Hippotherapy Association, n.d.). Therapists are not required to become certified to use hippotherapy; however, it is strongly encouraged to ensure the therapist is up to date on best practices and upholds the highest safety level. It is also preferred by most liability insurances (Hippotherapy Certification Board, n.d.).

The researcher has spent several years working with an array of therapists in the hippotherapy setting. In a typical hippotherapy session, the therapist may have the client ride the horse forward, sideways, or backward depending on the client's goals. The therapist will use different approaches to receive maximum benefit. The therapist will determine which horse to use based on the client's needs; a person who has hypertonia or high muscle tone would not benefit from a wide horse, where a person who has hypotonia or low muscle tone would have more stability on a wide horse. The therapist will also choose a horse based on their gait. The horse's gait will have the clients move one of three ways. Anterior to posterior, or front to back, is most beneficial for a client who is not a centered rider or is high tone. Lateral movement, or side to side movement, helps

riders find their center and increase core strength; a horse with rotational movement is a combination of anterior to posterior and lateral, which is ideal for a rider with high tone, as this movement can help loosen their muscles (PATH International, n.d.).

Adaptive Riding. Adaptive riding is an activity that improves the physical, emotional, cognitive, and social well-being of individuals with special needs (PATH International, n.d.). Individuals are taught to their ability versus their disability, meaning riding is adapted to fit the person's needs. Adaptive riding is generally conducted by a Credential Adaptive riding Instructor who received certification through PATH International (PATH International, n.d.). It is well known in the industry that PATH International instructors are held to the highest standards. They are constantly continuing their education, staying up to date on best practices, uphold high regard for safety, and are preferred by most insurance companies.

Riding activities may include walking, trotting, and going through obstacles; this may improve muscle tone, coordination, and lower stress (Lanning & Krenek, 2013). Instructors may use various equipment to meet the individual's needs (Kaiser et al., 2019). For instance, an independence saddle will provide support for an individual with cerebral palsy, allowing them to improve function, gain independence, and rely less on their side-walker to provide physical support in a different saddle (Kaiser et al., 2019). A side-walker is a person who walks along-side the client to provide emotional or physical support as needed; the instructor guides the side-walker.

EAS Organizations. Both NARHA and EAGALA stress the need for licensed mental health professionals and equine specialists. EAGALA's certification process requires each session to have both a licensed mental health professional and an equine

specialist. NARHA allows dual certification (Masini, 2010). EFP is widely used and developed by the therapist, leading to an increasing number of professionals and organizations that use this type of treatment worldwide (Bachi, 2012).

An individual may become certified as an equine specialist in mental health learning through PATH International. PATH International has set up phases to get certified. First is the application phase; the applicant must be 21 years of age, be a PATH International member, be current in adult and child CPR and first aid, attend an ESMHL workshop, and complete the horsemanship skills test (PATH International, n.d.). Next, the individual will submit their portfolio to the PATH International office. The portfolio includes documentation of current PATH International membership; present in adult and child CPR and first aid; certificate of completion from the ESMHL workshop; evaluation form the horsemanship skills test; signed PATH International code of ethics; a reference from an educator or mental health professional and an equine professional; 20 hours of hands-on education in equine behavior or management; and 60 hours of experience participating in EAS or other therapy actives (PATH International, n.d.). Upon completing these two phases, the individual will complete the PATH International standards course and an exam and the ESMHL exam online (PATH International, n.d.). ESMHL status must be renewed annually through PATH International (PATH International, n.d.).

To become certified through EAGALA, an individual must complete a pre-training webinar found on www.eagala.org (EAGALA, n.d.). Next, the individual must attend the fundamentals of the EAGALA model training course (EAGALA, n.d.). After completing the training course, the individual will create an account online with

EAGALA (EAGALA, n.d.). One must then complete post-training requisites, including post-training assessment courses, event evaluation; submit a portfolio; links to achieve this is provided after the fundamentals training course (EAGALA, n.d.). Upon completion and approval, the individual will receive their certification, which must be renewed every two years (EAGALA, n.d.).

Another program that PATH International offers is Equine Services for Heroes. This program differs from others because PATH International Premier Accredited Centers are provided funds through the Wounded Warrior Project scholarship program, which offers EAS services at no cost to military veterans (PATH International, n.d.; Russell, 2013).

Social Work

Social workers who were taught about EAP have shown some concern. While there is a concern for physical risk, practitioners take every precaution to avoid this. (Lee & Makela, 2018). There is a lack of empirical research regarding EAP; with more exposure, more social workers will recognize this as an effective modality (Lee & Makela, 2018). By exploring EAP, the social worker's work field will expand, providing them more opportunities and a way to get out of the office, leading to less burnout.

A limitation one should consider is allergens; if someone has an animal or other outdoor allergy, EAS may not be the proper therapy for them (Cody et al., 2011). Some precautions should be taken when working with clients and horses. Individuals with substance abuse disorders can benefit from EAS. However, precautions need to be taken depending on who is treating the participant. In adaptive riding, the instructor should only provide services once the participant has recovered from using substances and not

actively (Cody et al., 2011). Licensed clinical social workers with substance abuse disorder (SUD) experience may work with the individual with the goal of progressing to recovery. However, safety precautions need to be implemented to ensure the safety of all involved. Participants should not be allowed to participate in an equine activity while under the influence (Cody et al., 2011).

Theoretical Approaches. Many different theoretical approaches can be useful for doing equine therapy. Social workers must follow the National Association of Social Workers (NASW) Code of Ethics when working with clients. When choosing what method to use with a client, the therapist must not work outside the scope of their expertise. According to section 1.04, a social worker must be competent within their education or training (National Association of Social Workers, 2017).

Cognitive therapy can be used to help lower a client's anxiety. Horses being natural prey animals have a heightened sense of danger and are more aware of what is going on around them. Clients who have an anxiety disorder may sense how the horse reacts when they are in different scenarios. This allows the clinician to discuss how the client is feeling, focusing on the horse rather than the automatic thoughts of their anxieties (The Anxiety Treatment Center, n.d.). This approach allows the client to remain in control of their thoughts and lessen their anxiety (The Anxiety Treatment Center, n.d.).

Equine-assisted narrative therapy has been shown as an effective approach when working with individuals who have attention deficit hyperactive disorder, opposition defiant disorder, autism spectrum disorder, and many other diagnoses (Lentini & Knox, 2015). When working with horses, the client may experience situations that act as a metaphor for life outside the session. These situations force the client to identify and

learn how to regulate their feelings. Change may be observed in less time than traditional therapy due to the fact that the client can practice real-life situations as they arise (Lentini & Knox, 2015).

Adlerian theory is also an effective approach to equine-assisted therapy. Using Adlerian, the clinician focuses on the client's desire to belong and improves misbehavior goals of attention, power, revenge, or inadequacy (Lentini & Knox, 2015). By observing the client and horse, the clinician can determine which misbehaviors to set a goal. The clinician will monitor the client, and the horse's mirroring interaction to determine if goals are being met (Lentini & Knox, 2015).

Gestalt psychotherapy is another approach used in equine-assisted therapies. Using Gestalt as a guide, the client can be in the moment with the horse enhancing the relationship through touch (Lentini & Knox, 2015). This communication can be used as a metaphor when looking at family dynamics. As the relationship grows, the horse's body language will mirror the client. This approach has proven effective with individuals who have communication problems (Lentini & Knox, 2015).

Another effective theoretical approach is animal-assisted play therapy. This tends to be most effective with children who are not easily reached. This type of play has increased the hormone oxytocin by having contact with animals (Lentini & Knox, 2015). With the increase of oxytocin, stress-levels may decrease, and social orientation may increase. In this study, this increase in oxytocin caused the mother to positively interact with her child by providing more play and caregiving engagement. (Hebesberger et al., 2019). Suggested goals for this type of therapy are self-efficacy, attachment, self-regulation, and problem-resolution (Lentini & Knox, 2015).

Research

EAS was developed through the horse community rather than academia. Because of this, the need for research is imperative (Cody et al., 2011). The researcher reviewed over 36 studies done utilizing EAS. A few of these studied are highlighted below.

Researchers studied the effects of EFP on PSTD symptoms in youth (Mueller & McCullough, 2017). The participants in this study were ages 10-18 (Mueller & McCullough, 2017). Overall, the study showed the participant's PTSD symptoms improved. However, there was no significant change between the control group that received traditional talk therapy and the experimental group the received EFP (Mueller & McCullough, 2017). Thus, showing EFP is as effective as conventional talk therapy.

Another study investigated EFP's efficacy in Veterans with PTSD (Burton et al., 2018). This study had 20 veteran participants, 10 of whom did traditional therapy, and 10 received EFP. Though the data showed that the participant's PTSD symptoms improved, there was not a significant difference between the two groups (Burton et al., 2018).

A study was done with veteran participants in an adaptive riding program with combat-related PTSD (Lanning et al., 2018). A total of 89 veterans participated in the study. The results showed a significant decrease in depression symptoms and increased mental health scores, therefore, showing adaptive riding as an effective treatment for decreasing PSTD symptoms (Lanning et al., 2018).

The last study reviewed focused on evaluating an EFP program for veterans and their partners, a total of 47 veterans in the study, 25 veterans and 22 couples (Romaniuk et al., 2018). This study showed a reduction in psychological symptoms and depression, and the couples shower fewer symptoms at the three-month follow-up (Romaniuk et al.,

2018). This study shows how having a support system in the healing process may beneficial.

Summary

This extensive review looked at the effectiveness of using EAS to treat veterans with PTSD symptoms. The researcher used various databases to gather research articles on this subject, with a period of twenty years. The researcher had experienced the benefits of EAS activities while working with the general public and veterans from experience. Horses have been known to decrease depression and anxiety symptoms and increase self-esteem, overall happiness, and a sense of self-worth.

It has been noted that horses have been a part of therapy for humans for centuries. However, it has only been reported in the literature for the past eighty years. In the late ’60s, an organization was formed to provide education and guidance for those who partnered with horses for therapeutic purposes. There are a variety of activities that can be done using EAS. EFP partners, the therapist, client, and horse in a counseling session. In hippotherapy, a physical, occupational, or speech therapist uses the horse as a therapeutic setting tool. Adaptive riding instructors adapt the lesson to the need of the client while teaching a horsemanship skill.

While interning at the Idaho National Guard, the need for alternative forms of therapy was noted. The number of veterans known with psychological disorders is increasing. The veterans can easily relate to horses because horses are similar to people who behave. The VA has long been the preferred method to treat veterans. However, with the long wait times and the stigma that comes with going to the VA, the veteran has been seeking alternative therapy routes.

Research has shown that no one therapy works for everyone. Therapists need to educate themselves on various treatment forms to serve their clients to the best of their ability. With that said, the therapist should not work outside the scope of their knowledge. Many theoretical approaches can be used with EAS, as it is not a stand-alone form of therapy.

The development of EAS has been shown to work for many different forms of therapies. The need for alternative treatment for veterans has been confirmed. The need to further research EAS has been demonstrated as a lack of research. The research that has been done has been shown that EAS is an effective alternative form of treatment.

Chapter III: Methodology and Procedure

Over the past decade, more research has been done measuring EAS's effectiveness as an alternative in treating individuals with PTSD symptoms. This chapter will provide a clear understanding of the study. The researcher will describe the targeted population area, sample size, means of data collection, how data will be analyzed, and ethical considerations.

Research Question

According to the U.S. Department of VA, an estimated 10-30% of veterans have or are currently suffering from PTSD symptoms (U.S. Department of Veterans Affairs, n.d.-a). Given this percentage, the researcher chose to limit the study participants to veterans near Eastern Idaho and focus on the question: Are equine-assisted services effective in treating groups of veterans with PTSD symptoms?

Research Design

Empirical research supports the effectiveness of EAS as a treatment for veterans with PTSD. However, studies examining this modality are sparse. The purpose of this study is to address the need for research as there is a lack of empirical evidence to support EAS as a treatment for veterans with symptoms related to PTSD. The study was meant to be a quantitative group design. However, with low enrollment, a single-case design was a better fit. Eight participants reside in Eastern Idaho and one from Central Utah. Each participant will complete instrument testing pre-study, during the study, and post-study. The study will consist of an 8-week EAS program with a curriculum by Hope for Heroes Equine Therapy Consulting, LLC (Fisher, 2016). The 8-week study consists of participants coming to an EEA/T facility for one hour once a week for 8-weeks.

Population/Sample

The population was aimed at self-reporting veterans with PTSD symptoms who lived within the equine facility's driving distance in Eastern Idaho. Eight participants started the study. Of those eight, five were males ages 37-74, and three females ages 30-63.

Instrument

The researcher did an extensive search for an instrument that measured PTSD symptoms. After a thorough examination, the researcher settled on three instruments to use in the study. The first instrument chosen is the PTSD Checklist for DSM-5 (PCL-5) (Appendix B). The PCL-5 is a popular diagnostic tool used by the military in diagnosing PTSD. After reviewing two studies, the researcher chose the PCL-5 as the primary

instrument because of its strong reliability (r=.82), and convergent (rs =.74 to .85) and discriminant (rs =.31 to .60) validity (Blevins et al., 2015).

The second instrument chosen is a Quantitative EEG (qEEG) brain mapping. The researcher collaborated with an Occupational Therapist to perform qEEG brain mapping using a system called BrainCore Neurofeedback. BrainCore Neurofeedback is an instrument that conducts qEEG brain mapping to identify parts of the brain that are dysregulated; the wave patterns shown may be related to symptoms that the participants are having. The components of the brain that are analyzed are shown in Appendix C (Greenville Brain Mapping, 2016). The BrainCore software will code the different parts regulated with green and the dysregulated parts with yellow, meaning very high, red, high, light blue low, and blue very low (BrainCore Neurofeedback, 2020). The qEEG data to be analyzed is the focal point dysregulation showing the EEG neurological rating symptoms (BrainCore Neurofeedback, 2020). Changes in brain function will be analyzed with the eyes open versus the eyes closed. When the eyes are closed, the alpha rhythm shows signs of relaxation (Kan et al., 2017). When the eyes are open, the delta, theta, and beta powers are higher (Kan et al., 2017). According to Thatcher (2010), "qEEG is greater than 0.9 reliable with as little as 40-s epochs and remains stable with high test-retest reliability over many days and weeks".

The last instrument chosen is a 7-question survey (Appendix D) given to the participants pre-session and post-session. This instrument is part of an 8-week curriculum by Hope for Heroes Equine Therapy Consulting, LLC (Fisher, 2016). It is unknown if this instrument has been tested for reliability and validity.

Participants were required to sign the following forms to participate in the EAS sessions at the equine facility: Meadowlark Farms Hold Harmless/ Release of Liability (Appendix E), Unbridled Hope, Inc. COVID-19 Liability Waiver/Release (Appendix F), Unbridled Hope, Inc. Release of Liability (Appendix G).

Data Collection

The researcher advertised the study through word of mouth and flyers handed out at the VA in Eastern Idaho, the Vet Center, the Idaho Army National Guard Armoires in Eastern Idaho, Phoenix QRF, counseling agencies, social media, and other veteran groups in Eastern Idaho. While visiting some of these centers, the researcher was met with some hesitation about using Accelerated Resolution Therapy as one of the study's treatments. After consultation with the researcher's advisor, it was decided to drop Accelerated Resolution Therapy and focus on EAS.

Participants contacted the researcher via phone or email with interest in participating in the study. The researcher then interviewed each participant who answered questions for an eligibility screener (Appendix H) over the phone. The researcher interviewed participants from November 2019 through March 2020. When it was time to have the pre-qEEG, the COVID-19 pandemic had some participants concerned who chose not to continue with the study. The remaining participants had their pre-qEEG done in March. Shortly after this, the number of individuals infected by the pandemic was high, which caused Idaho's Governor to take measures to ensure Idahoans' safety. This measure caused the state to close all non-essential activities. Thus, delaying the start of the study.

Participants started the 8-week study in May 2020. Each participant was given a binder with paper copies of the PCL-5 and the pre-and post-test survey they would be taking. The data will be collected and stored electronically with password protected files on a password-protected platform every week. The binders were handed to the participants when they arrived and collected by the researcher at the end of each session. On the first day, each participant arrived and completed the PCL-5 and pre-survey before beginning the EAS session. At the end of the 50-minute session, each participant completed a post-survey. Each week participants will complete the pre-and post-survey before and after the 50-minute EAS session. The PCL-5 will be conducted using a paper copy at the start of week 1, week 5, and week 8. At the end of the study, participants will be scheduled for the post-qEEG. The researcher will meet with the Occupational Therapist who performed the qEEG to discuss and gather the data. The last piece of data collected was the PCL-5 2-months after the study ended. This was done over the phone due to the pandemic.

Data Analysis

After data collection, the researcher analyzed each participant's data for a single-case design. The data received is then put into a graph or chart for analysis. The use of graphs and charts is pertinent in single-case designs as it provides a visual analysis to determine the effects of the study (Hott et al., 2015). The researcher also noted observations throughout the study that were analyzed to show the participant and horse's relationship.

Ethical Consideration

To limit the chance of an ethical issue, the researcher will ensure that each participant was treated equally. Each participant will be given the same eligibility screener. The researcher will describe the study to each participant and allow the participants to ask questions to ensure they fully understand the study. Each participant will sign informed consent to ensure they understand the study is voluntary (Appendix I).

Another ethical consideration is the vulnerability of the population. Veterans who have PTSD symptoms may be considered a vulnerable population. During the study, they may become triggered, bringing up their PTSD symptoms and other past traumas. If a situation arises during a session, two clinicians will be on-site; one clinician can process the trigger with the participant in private, while the other remains with the group in session.

To ensure the participant's needs are met outside of the study time, the researcher provides each participant with resources to assist them as needed. Such resources are the researchers and faculty advisors' contact information, the contact information for the VA in Idaho Falls and Pocatello, and contact information for the Vet Center.

Summary

The study will provide a thorough analysis of the effectiveness of EAS in treating veterans with PTSD symptoms. With limited research, this study's findings will help determine EAS as a beneficial treatment for veterans with PTSD symptoms. The following chapters will provide the results and conclusions of this study.

Chapter IV: Research Findings

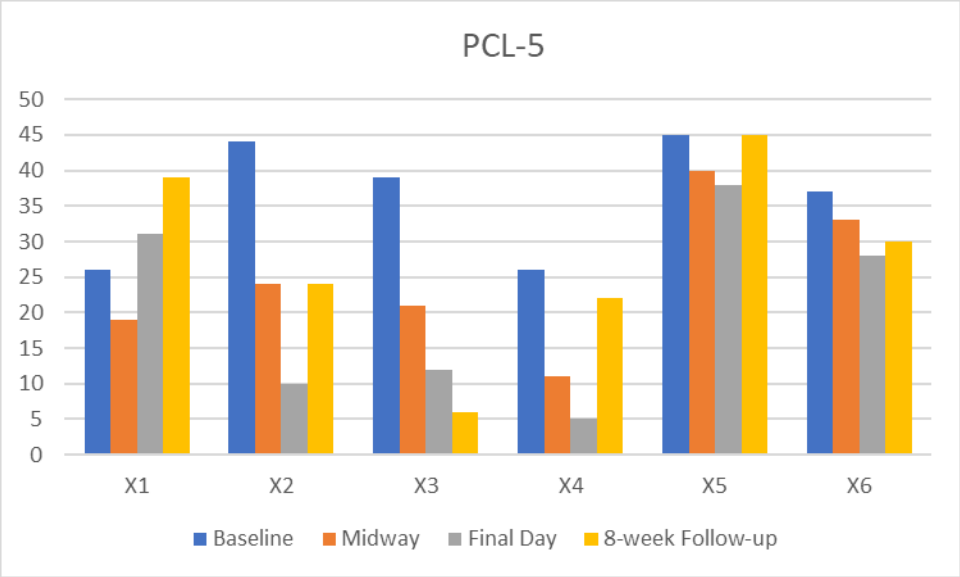
EAS is not a new form of treatment when working with veterans with PTSD symptoms. This single-case design will look at the effectiveness of treating veterans with PTSD symptoms utilizing EAS as a form of treatment. The researcher analyzed and described the data received from each of the instruments used. To ensure the confidentiality of all participants, the researcher has randomly assigned a letter and number combination. The researcher will first look at the results of the PCL-5 and then the qEEG brain mapping.

PCL-5

The participants were each given a paper copy of the PCL-5 to complete. They completed the PLC-5 on four separate occasions. The first one was administered on the first day the participants came to the barn before they met the horses. The second one was taken at the barn at the end of week four. The third one was taken at the barn at the end of week eight, which ended the eight-week session of working with the horses. The last one was given eight weeks after the last session over the phone due to the pandemic. Figure 1 looks at the numbers gathered from the PCL-5.

Figure 1

PCL-5 Data



PCL-5 Data

Participant X1. This participant showed a decrease in PTSD symptoms at the midway point. Symptoms increased on the final day of sessions. The eight-week follow-up results showed the PTSD symptoms had increased significantly from the beginning of the eight-week session.

Participant X2. This participant's PTSD symptoms decreased significantly from baseline to the midway point and a further reduction of symptoms at the end of the eight-week session. However, the symptoms did increase between the end of the sessions and the eight-week follow-up.

Participant X3. This participant's PTSD symptoms showed a significant decrease in symptoms at the midway point, end of the sessions, and continued to decrease through the eight-week follow-up.

Participant X4. This participant's PTSD symptoms showed a significant decrease in symptoms at the midway and end sessions. However, at the eight-week follow-up, the symptoms had increased.

Participant X5. This participant's PTSD symptoms showed a slight decrease in symptoms at the midway and end sessions. However, at the eight-week follow-up, the symptoms had increased to the same as the baseline.

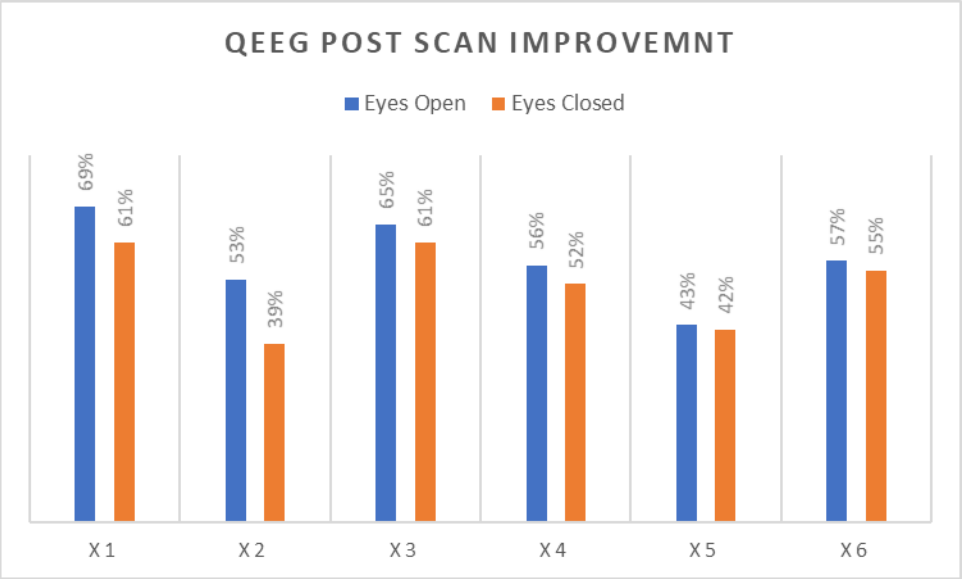
Participant X6. This participant's PTSD symptoms showed a slight decrease in symptoms at the midway point, end of sessions, and continued to decrease through the eight-week follow-up.

QEEG Brain Mapping

All Participants were given the post qEEG within one-week of ending the sessions at the barn. Participants showed significant improvement in the overall brain function with their eyes open and closed and changes on the focal site dysregulation- EEG neurological rating. Refer to Appendix D to see which areas of the brain show improvement. Figure 2 shows a comparison for each participant with their eyes open versus eyes closed.

Figure 2

qEEG Post Scan Improvement with Eyes Open vs. Eyes Closed



Participant X1. This participant had the largest improvement percentage with eyes open and a significant improvement with eyes open in overall brain functions. With eyes open and closed, the participant showed the locations with the highest change towards normalization at: F4, T3, T4, and P3. The qEEG shows positive changes in the following symptoms: rumination and worry. Negative changes were noted in: decision making, motivation, math comprehension, social inappropriateness, hyperactivity, distractibility, excessive speech, victim mentality, agitation, passive-aggressiveness, excessive rationalization, and restlessness. The technician noted the participant "showed areas with dampering down or areas of concern" (Jaques, 2020).

Participant X2. This participant showed improvement with eyes open and closed in overall brain function. With eyes open, the participant showed the locations with the highest change towards normalization at: F4, T3, C4, and P3. With eyes closed, the participant showed the locations with the highest change towards normalization at: T3, C3, C4, and P4. The qEEG shows positive changes in the following symptoms: hyper-

emotional, excessive self-concern, obsessive thinking, and dislike of change/novelty. Negative changes were noted in visual processing, self-deprecation, and worry.

Participant X3. This participant showed significant improvement with eyes open and closed in overall brain function. With eyes open and closed, the participant showed the locations with the highest change towards normalization at: T3, C3, C4, and T4. The qEEG show negative changes in the following symptoms: verbal processing, decision making, visual processing, motivation, problem solving, math comprehension, impulsivity, socially inappropriate, hyperactivity, distractibility, excessive speech, hyper-emotional, victim mentality, anger, self-deprecation, agitation, irritability, passive aggressive, worry, hyper-vigilant, obsessive thinking, dislike of change/novelty, excessive rationalization, and restless. The technician noted that the participant was a bit tense that can affect the EEG program rating, “artifacts- movement, muscle tension, slow blink, swallow, etc.” (Jaques, 2020).

Participant X4. This participant showed significant improvement with eyes open and closed in overall brain function. With eyes open, the participant showed the locations with the highest change towards normalization at: F4, T3, C3, and T4. With eyes open, the participant showed the locations with the highest change towards normalization at: C3, C4, P3, and P4. The qEEG shows positive changes in the following symptoms: decision making, motivation, math comprehension, memory, impulsivity, socially inappropriate, hyperactive, distractibility, rumination, hyper-vigilant, and restless. Negative changes were noted in hyper-emotional, self-deprecation, and worry. The technician noted a significate improvement in EEG symptoms (Jaques, 2020).

Participant X5. This participant showed significant improvement with eyes open and closed in overall brain function. With eyes open, the participant showed the locations with the highest change towards normalization at: F3, T3, T4, and O2. With eyes open, the participant showed improvements in the following parts of the brain: C3, C4, P4, O2. The qEEG shows positive changes in the following symptoms: visual processing, socially inappropriate, self-deprecation, agitation, passive aggressive, and worry. Negative changes were noted in hyper-emotional, rumination, and irritability. The technician noted improvement in EEG symptoms (Jaques, 2020).

Participant X6. This participant showed significant improvement with eyes open and closed in overall brain function. With eyes open, the participant showed the locations with the highest change towards normalization at: T3, T4, P3, and P4. With eyes closed, the participant showed the locations with the highest change towards normalization at: T3, C3, C4, and T4. The qEEG shows negative changes in the following symptoms: decision making, visual processing, motivation, problem solving, math comprehension, impulsivity, hyperactivity, distractibility, excessive speech, hyper-emotional, victim mentality, rumination, anger, agitation, irritability, worry, hyper vigilant, obsessive thinking, dislike of change/novelty, excessive rationalization, and restlessness. The technician noted that the client had a rapid heart rate, and the client reported she is being seen for atrial fabulation (Jaques, 2020).

Pre- and Post-Survey

The pre-and post-survey data show a decrease in symptoms in every participant.

Participant X1. This participant had a mean score of 33.5 on the pre-survey and a mean score of 29 on the post-survey. Showing a 5.63% decrease in symptoms.

Participant X2. This participant had a mean score of 20 on the pre-survey and a mean score of 7 on the post-survey. Showing a 18.6% decrease in symptoms.

Participant X3. This participant had a mean score of 32 on the pre-survey and a mean score of 20 on the post-survey. Showing a 17.14% decrease in symptoms.

Participant X4. This participant had a mean score of 29 on the pre-survey and a mean score of 16 on the post-survey. Showing a 16.25% decrease in symptoms.

Participant X5. This participant had a mean score of 23.625 on the pre-survey and a mean score of 19.625 on the post-survey. Showing a 5% decrease in symptoms.

Participant X6. This participant had a mean score of 37.64 on the pre-survey and a mean score of 31.86 on the post-survey. Showing an 8.23% decrease in symptoms.

Summary

The data shows that 100% of the participants had a decrease in PTSD symptoms on the PCL-5 at the midway point. On the final day of sessions, the PLC-5 shows an 83% decrease in PTSD symptoms. The eight-week follow-up shows a 17% overall decrease in PTSD symptoms. The qEEG reports of the participant's eyes open and close show a significant improvement in overall brain function. However, the qEEG symptoms show both positive and negative changes due to artifacts from external factors.

Chapter V: Discussion of the Research and Findings

Introduction

According to the U.S. Department of Veterans Affairs Office- VA annual report of 2020, it was reported in 2018, that an average of 17.6 veterans completed suicide each day in the U.S., the need to find a treatment method that is best suited for them is vital (VA, 2020). A small number of veterans seek help with PTSD with the VA; many of

them would rather use a private provider (Hundt et al., 2018). Some treatment barriers are having a negative experience with the VA staff and providers, trouble navigating the VA systems, poor access, stigma, and dropout rate (Hundt et al., 2018; Steele, Wood et al., 2018). Thus, veterans are seeking alternative forms of treatment because of the barriers (Ferruolo, 2016). Because of these barriers, veterans are not getting the treatment that they need. The researcher found this information essential to note that alternative forms of treatment need to be made more accessible to veterans because it shows that some veterans would prefer not to seek treatment if their only option is to go to the VA.

The researcher has seen the EAS field has become more popular because horses help break down barriers due to the horse's high sensitivity and responsiveness to human behavior. The researcher has also seen EAS as a benefit for clients who do not respond to mainstream therapies; they cannot connect with a therapist, need a different learning platform, or many other reasons.

The need for alternative treatments for veterans with PTSD symptoms and the lack of research using EAS as an effective treatment method led to the research question: Are Equine-assisted activities or therapies effective in treating veterans with PTSD symptoms?

The researcher did due diligence in obtaining participants for this study. Originally the researcher planned on doing a qualitative randomized study with a minimum of 40 participants. However, due to COVID-19, the number of people willing to participate was limited. There were 13 veterans who expressed interest in the study and completed the eligibility screener. Each of these participants was deemed eligible for the study. When the researcher scheduled each participant for the qEEG, the number of

participants still interested in the study dropped to nine. Due to COVID-19, one of the nine participants had to drop out of the study due to having a compromised immune system. The study started with eight participants. One dropped out after the first day, for unknown reasons. However, on the first day of the study, a disturbance in the barn may have impacted the participants. The researcher had worked with the property owner to minimize distractions during the study. However, the person who entered the barn chose not to follow the guidance of the property owner. Another dropped out after week three due to health conditions that would not allow the participant to continue. Thus, the study finished with six participants. The researcher determined if EAS effectively treated PTSD symptoms of the six participants who completed this study. With the limited number of participants, the researcher chose to modify the original methodology plan and conduct a single case design with each participant.

Each participant participated once a week in an eight-week EAS session. Throughout the eight-week study, each participant took the PCL-5, qEEG, and pre-and post-surveys at their designated times. Data were collected each week, scanned, and stored electronically. All paper copies of the data were destroyed after scanning to ensure confidentiality. Once the last test was performed, the research organized and analyzed the data.

Discussion

The researcher had planned to start the study in the spring but was delayed due to COVID-19. Participants completed their initial qEEG before the pandemic became widespread in the United States. Once the numbers declined and in accordance with the laws in the State of Idaho, the researcher was able to start the study in person. The time

between the qEEG and starting the EAS sessions was about four months. However, when analyzing all three testing instruments, the researcher determined that the time gap did not interfere with the study results.

The data gathered in this research study and previous research studies were congruent regarding EAS as a treatment for individuals with PTSD symptoms. The PCL-5 results throughout the study show that four out of the six participants had a reduction in PTSD symptoms. The qEEG brain mapping showed significant improvement in brain regulation from the pre-scan to the post-scan. When the eyes are closed, it stimulates relaxation. The lowest percent of change was 43%, while the highest percent of change was 69%. When the eyes are open, it stimulates activation. The lowest percent of change was 39%, while the highest percent of change was 61%. The BrainCore technician said if the study had gone on for another four to eight weeks, the results might have shown an even more significant improvement (BrainCore Technician, 2020). The pre-and post-surveys show decrease in symptoms amongst all participants. Therefore, all testing instruments show that EAS is an effective treatment for veterans with PTSD symptoms. Using all three testing instruments, the researcher will discuss the findings of the study.

Findings

Participant X1. This participant had the most significant improvement in brain function according to the qEEG data. However, the self-reporting data from the PCL-5 showed symptoms increased over the eight-week study and increased even more at the two-month follow-up. The self-reporting data on the pre-and post-test surveys showed a decrease in symptoms. Even though the PCL-5 data shows an increase in symptoms, the other two testing instruments showed an improvement. The researcher noted on the pre-

and post-surveys, the days when the participant was more active doing new activities with the horses, the more the participant's symptoms decreased. Thus, leading the researcher to determine being active was a key factor for this participant.

Participant X2. This participant had a significant improvement in brain function according to the qEEG data. The self-reporting data from the PCL-5 showed symptoms decrease significantly over the eight-week study. However, symptoms increased at the two-month follow-up. The self-reporting data on the pre-and post-test surveys also showed a decrease in symptoms. The researcher noted that this participant had the most significant reduction in symptoms on the pre-and post-surveys when allowed to go at a slower pace. When the participant could perform the activity of the day or groom the horse with little movement. This led the researcher to note that this participant benefited from EAS from the somatic experience happening with the horse.

Participant X3. This participant had a significant improvement in brain function according to the qEEG data. The self-reporting data from the PCL-5 showed symptoms decreased significantly over the eight-week study and the two-month follow-up. The self-reporting data on the pre-and post-test surveys also showed a decrease in symptoms. The researcher noted the bond the participant made with the horse. The researcher has worked with this particular horse for over a year and has never seen someone bond with it as this participant did.

Participant X4. This participant had significant improvement in brain function according to the qEEG data. The self-reporting data from the PCL-5 showed symptoms significantly decreased over the eight-week study and increased even at the two-month follow-up. The self-reporting data on the pre-and post-test surveys showed a decrease in

symptoms. This participant and horse pair were fascinating to watch. With each challenge the horse presented, the participant took it with stride, and the participant and horse were able to overcome the challenge. This was the only participant who built a bond with the horse to do liberty (off lead) work with success.

Participant X5. This participant had a significant improvement in brain function according to the qEEG data. The self-reporting data from the PCL-5 showed symptoms decreased slightly over the eight-week study but had the same results as the baseline at the two-month follow-up. The self-reporting data on the pre-and post-test surveys showed a decrease in symptoms. Halfway through the study, the participant had to change horses due to an injury the horse had. The participant took it with stride and formed a greater bond with the new horse. The new horse presented several challenges for the participant. The researcher noted how the participant would react by calming talking to the horse. After talking with the horse, the participant and horse would reconnect and move on with their task.

Participant X6. This participant had a significant improvement in brain function according to the qEEG data. The self-reporting data from the PCL-5 showed symptoms gradually decreased over the eight-week study and the two-month follow-up. The self-reporting data on the pre-and post-test surveys also showed a decrease in symptoms. Halfway through the study, the participant had to change horses due to an injury the horse had. The new horse was young and had some limitations due to special needs. The participant could relate to the horse due to their own limitations. Though this participant was saddened to change horses, the bond formed with the new horse was significant. Thus, resulting in a decrease in the participant's PTSD symptoms.

The researcher believes that EAS was effective in reducing PTSD symptoms in the participants of this study. This is the first study that has used qEEG as a testing interment to the researcher's knowledge. With that said, the researcher recommends a larger and longer study be done using qEEG as a primary testing method.

Conclusion

There are many treatments for veterans with PTSD symptoms. However, not one treatment works for every individual. A study by Lanning et al. (2018) supports the findings that EAS effectively treats veterans with PTSD symptoms.

In two studies, it was determined that EAS was an effective form of treatment. However, they did not see a significant difference in the control group versus the experimental group (Burton et al., 2018; Mueller & McCullough, 2017). The researcher's study would have been more substantial if there had been a control and experimental group versus a single-case design.

Another study showed the effectiveness of having a support system to reduce PTSD symptoms (Romaniuk et al., 2018). Though this study did not focus on participants having a support system in place, the researcher knows all six participants had a home support system from discussion with the participants. Thus, the study above shows the importance of a support system.

This research study was to determine if EAS was an effective treatment for veterans with PTSD symptoms. The researcher found the following conclusions.

1) EAS is effective as a treatment for veterans with PTSD symptoms.
2) The testing instruments used were efficient.

Recommendations for Future Research

Although this research showed that EAS was an effective treatment for veterans with PTSD symptoms, further research is needed. The researcher recommends the following when conducting further research:

1. Due to the limited research using qEEG, more research is needed because this testing instrument is unbiased and is not self-reporting. No other studies were located based on qEEG as a testing instrument for individuals with PTSD in an EAS setting to the researcher's knowledge.

2. A larger group of participants is needed because there may be factors that cause participants to drop out of the study. A larger population is also preferred when factoring in statistical data.

3. The BrainCore technician indicated an extended study of 12-16 weeks. It was noted that the qEEG results might have been more significant if the study had been longer (Jaques, 2020).

4. Having a control and experimental group would provide more robust support for EAS's effectiveness as an alternative treatment for veterans.

Further research is necessary to show EAS's effectiveness as a treatment for individuals with PTSD symptoms whether or not they are veterans. Research is essential when educating others on which treatment option to choose.

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Appendix A

Post-Traumatic Stress Disorder Criteria

Post-traumatic Stress Disorder

309.81 (F43.10)

Note: The following criteria apply to adults, adolescents, and children older than 6 years. For children 6 years and younger, see corresponding criteria below.

A. Exposure to actual or threatened death, serious injury, or sexual violence in one (or more) of the following ways:

1. Directly experiencing the traumatic event(s).

2. Witnessing, in person, the event(s) as it occurred to others.

3. Learning that the traumatic event(s) occurred to a close family member or close friend. In cases of actual or threatened death of a family member or friend, the event(s) must have been violent or accidental.

4. Experiencing repeated or extreme exposure to aversive details of the traumatic event(s) (e.g., first responders collecting human remains; police officers repeatedly exposed to details of child abuse).

Note: Criterion A4 does not apply to exposure through electronic media, television, movies, or pictures, unless this exposure is work related.

B. Presence of one (or more) of the following intrusion symptoms associated with the traumatic event(s), beginning after the traumatic event(s) occurred:

1. Recurrent, involuntary, and intrusive distressing memories of the traumatic event(s).

Note: In children older than 6 years, repetitive play may occur in which themes or aspects of the traumatic event(s) are expressed.

2. Recurrent distressing dreams in which the content and/or effect of the dream are related to the traumatic event(s).

Note: In children, there may be frightening dreams without recognizable content.

3. Dissociative reactions (e.g., flashbacks) in which the individual feels or acts as if the traumatic event(s) were recurring. (Such reactions may occur on a continuum, with the most extreme expression being a complete loss of awareness of present surroundings.)

Note: In children, trauma-specific reenactment may occur in play.

4. Intense or prolonged psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event(s).

5. Marked physiological reactions to internal or external cues that symbolize or resemble an aspect of the traumatic event(s).

C. Persistent avoidance of stimuli associated with the traumatic event(s), beginning after the traumatic event(s) occurred, as evidenced by one or both of the following:

1. Avoidance of or efforts to avoid distressing memories, thoughts, or feelings about or closely associated with the traumatic event(s).

2. Avoidance of or efforts to avoid external reminders (people, places, conversations, activities, objects, situations) that arouse distressing memories, thoughts, or feelings about or closely associated with the traumatic event(s).

D. Negative alterations in cognitions and mood associated with the traumatic event(s), beginning, or worsening after the traumatic event(s) occurred, as evidenced by two (or more) of the following:

1. Inability to remember an important aspect of the traumatic event(s) (typically due to dissociative amnesia and not to other factors such as head injury, alcohol, or drugs).

2. Persistent and exaggerated negative beliefs or expectations about oneself, others, or the world (e.g., “I am bad,” “No one can be trusted,” “The world is completely dangerous,” “My whole nervous system is permanently ruined”).

3. Persistent, distorted cognitions about the cause or consequences of the traumatic event(s) that lead the individual to blame himself/herself or others.

4. Persistent negative emotional state (e.g., fear, horror, anger, guilt, or shame).

5. Markedly diminished interest or participation in significant activities.

6. Feelings of detachment or estrangement from others.

7. Persistent inability to experience positive emotions (e.g., inability to experience happiness, satisfaction, or loving feelings).

E. Marked alterations in arousal and reactivity associated with the traumatic event(s), beginning, or worsening after the traumatic event(s) occurred, as evidenced by two (or more) of the following:

1. Irritable behavior and angry outbursts (with little or no provocation) typically expressed as verbal or physical aggression toward people or objects.

2. Reckless or self-destructive behavior.

3. Hypervigilance.

4. Exaggerated startle response.

5. Problems with concentration.

6. Sleep disturbance (e.g., difficulty falling or staying asleep or restless sleep).

F. Duration of the disturbance (Criteria B, C, D, and E) is more than 1 month.

G. The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.

H. The disturbance is not attributable to the physiological effects of a substance (e.g., medication, alcohol) or another medical condition.

Specify whether:

With dissociative symptoms: The individual's symptoms meet the criteria for post-traumatic stress disorder, and in addition, in response to the stressor, the individual experiences persistent or recurrent symptoms of either of the following:

1. **Depersonalization:** Persistent or recurrent experiences of feeling detached from, and as if one were an outside observer of, one's mental processes or body (e.g., feeling as though one were in a dream; feeling a sense of unreality of self or body or of time moving slowly).

2. **Derealization:** Persistent or recurrent experiences of unreality of surroundings (e.g., the world around the individual is experienced as unreal, dreamlike, distant, or distorted).

Note: To use this subtype, the dissociative symptoms must not be attributable to the physiological effects of a substance (e.g., blackouts, behavior during alcohol intoxication) or another medical condition (e.g., complex partial seizures).

Specify if:

With delayed expression: If the full diagnostic criteria are not met until at least 6 months after the event (although the onset and expression of some symptoms may be immediate).

Appendix B

PCL-5

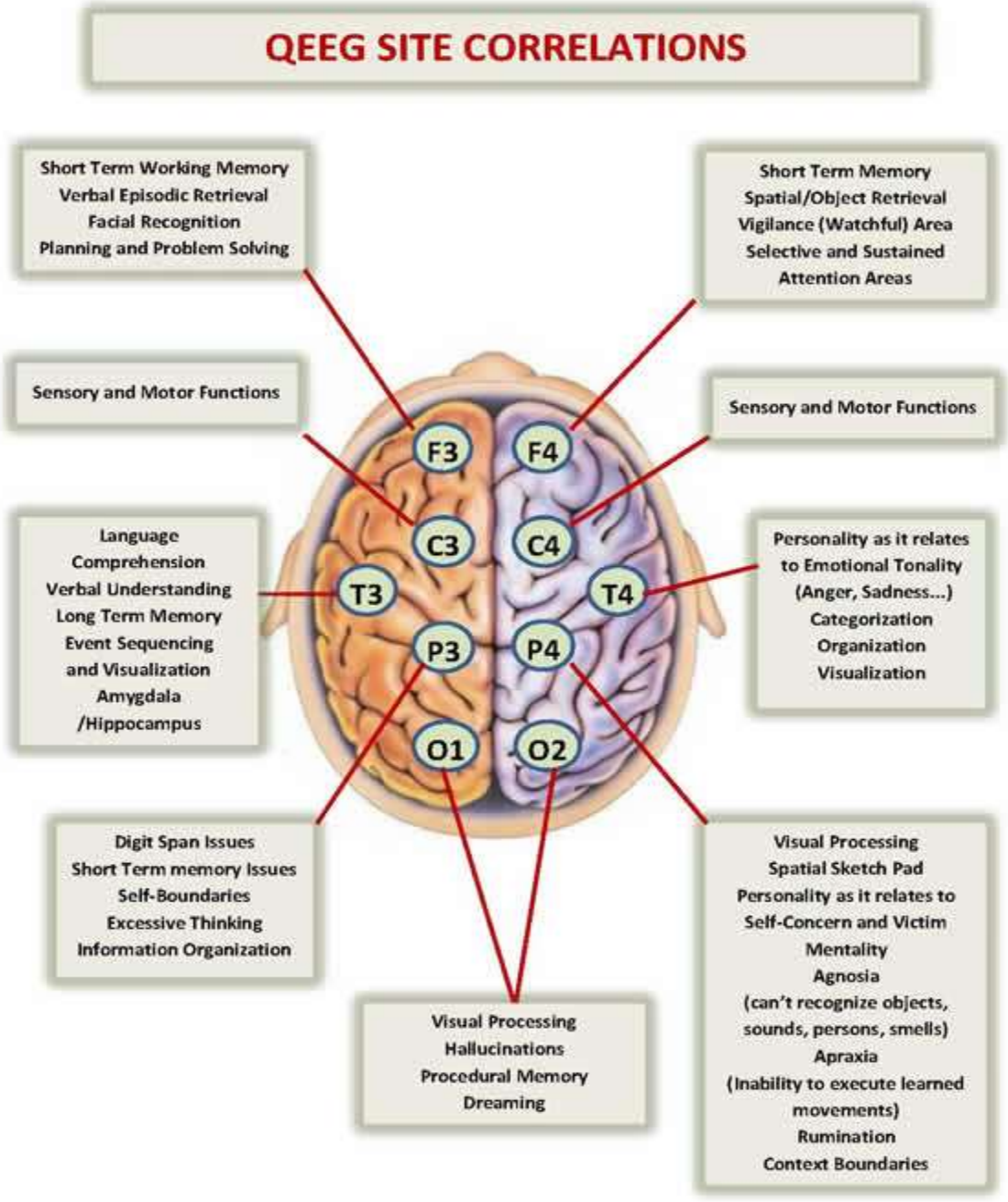
PCL-5

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

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

Appendix C

QEEG Site Correlations



QEEG Site Correlations. (n.d.). https://greenvillebraintraining.com/wp-content/uploads/2016/06/3-QEEG-SiteCorrelations.jpg

Appendix D

Pre-Test

Rider:	Horse:	Class Time:	Date:

Pre-Lesson: Rider fills out information in box below

General Anxiety	Not Anxious ⟷ Very Anxious 0 1 2 3 4 5 6 7 8 9 10
Feeling Detached	Very Connected ⟷ Very Detached 0 1 2 3 4 5 6 7 8 9 10
Physical Pain	No Pain ⟷ Extreme Pain 0 1 2 3 4 5 6 7 8 9 10
Irritability	Not Irritable ⟷ Very Irritable 0 1 2 3 4 5 6 7 8 9 10
Fatigue	Do you experience Fatigue? ___Yes ____No If yes, please rate your fatigue since your last lesson No Fatigue ⟷ Very Fatigued 0 1 2 3 4 5 6 7 8 9 10
Energy	Lots of Energy ⟷ No Energy 0 1 2 3 4 5 6 7 8 9 10
Insomnia	Do you experience Insomnia? ___Yes ____No If yes, please rate your insomnia since your last lesson No Insomnia ⟷ Insomnia 0 1 2 3 4 5 6 7 8 9 10

Objectives for class today

Objective one:	Objective two:

Staff and Volunteer Notes observations:

Rider:	Horse:	Class Time:	Date:

Post-Lesson: Please fill out this information below after your lesson.

General Anxiety	Not Anxious ⟷ Very Anxious 0 1 2 3 4 5 6 7 8 9 10
Feeling Detached	Very Connected ⟷ Very Detached 0 1 2 3 4 5 6 7 8 9 10
Physical Pain	No Pain ⟷ Extreme Pain 0 1 2 3 4 5 6 7 8 9 10
Irritability	Not Irritable ⟷ Very Irritable 0 1 2 3 4 5 6 7 8 9 10
Fatigue	No Fatigue ⟷ Constant Fatigue 0 1 2 3 4 5 6 7 8 9 10
Energy	Lots of Energy ⟷ No Energy 0 1 2 3 4 5 6 7 8 9 10
Insomnia	No Insomnia ⟷ Insomnia 0 1 2 3 4 5 6 7 8 9 10

Rider Comments:

Your comments help us better to serve you

Appendix E

Liability Form

MEADOWLARK FARMS
1689 E 113 S
Idaho Falls, ID 83404

HOLD HARMLESS/RELEASE OF LIABILITY

It is hereby declared and agreed upon between Dan and Emily Pressley (hereinafter referred to as Pressley Ranch) and Rider/Participant/Observer:

_____

Please Print: First Name Middle Initial Last Name

The undersigned states the following (Please initial each paragraph)

1. I (we) am (are) aware that horseback riding contains inherent risks of injury and/or death to me personally, to my horse, and damage to my equipment, caused by accident, my own negligence, or the negligence of others. Riding is hazardous because, even if the rider is knowledgeable, horses sometimes act unpredictably. The cause of unpredictable behavior may be unknown and/or due to environmental changes or unfamiliar sight and/or noises. Accidents can cause severe injury and/or death to the horse and/or rider and/or observer and/or third party. In addition, injury and/or death can occur due to the negligence of third parties. The failure of the rider to adjust equipment properly can result in injury and/or death as can equipment failures. When riding in groups, the rider and/or horse and/or observer and/or third party may suffer injury and/or death because of actions of another rider and/or horse and/or observer and/or third party.

_____ Initial

2. Knowing these fact, I (We) nevertheless, in consideration of the acceptance of this agreement by Pressley Ranch, Clinic Sponsors, Club Contractors, and Property Owners, hereby for myself, my heirs, executors and administrators, assume the risk of these similar dangers and waive any claims against, release and forever discharge Pressley Ranch, and their owners, employees, agents, volunteers, and representatives (and their heirs, executors, administrators and assigns) from any and all right, claim or liability for damages, or for any and all injuries and/or death that might be sustained by me (including injuries to animals), or from any and all claims of any kind of nature that I (We) might have a s a result of, or arising out of being on owners property and/or receiving riding instructions.

_____ Initial

3. This release will extend to any accident, damages, or claims whether arising out of my own acts
(or the acts of any horse within my control) or acts of others which have resulted in injury and/or death to me (us).

_____ Initial

4. I (We) do understand and agree that I (We) will not hold the property owners, lessees, subcontractors, employees, volunteers, and representatives (and their heirs, executors, administrators and assigns) responsible for any disease, illness, injury and/or death to my horse(s) or myself or ty my friend(s), relatives, or acquaintances on the owners property incurred by water, electricity, snow, ice, hail, fire, building structure, building structure default or design, wind, act of carelessness, negligence, vandalism or misjudgment or any other act of God. In addition, I have read and understand the Statute of Limiting Liability for Horse Activities in this state.

_____ Initial

5. I (We) do understand and agree that I (We) will wear all necessary safety equipment including but not limited to helmets, heeled boots, breeches, etc. I (We agree to hold Pressley Ranch and their owners, employees, agents, subcontractors, volunteers, and representatives and their executors, administrators, and assigns) harmless and waive any and all claims against listed parties and forever discharge listed parties from any and all liability whatsoever regarding safety and equipment.

_____ Initial

6. I (We) do understand and agree that Pressley Ranch, employees, or representative has the right to excuse myself or anyone else associated with myself or my party from the premises at Pressley Ranch's discretion.

_____ Initial

Signature of Rider/Observer: _____Date: _____

Address: _____Phone: _____

City: _____ State: _____ Zip _____

Email: _____

Emergency Contacts: _____

FOR PARTICIPANTS WHO ARE UNDER 18 YEARS OF AGE

If rider and/or horse owner(s) are a minor, parent and/or legal guardian must complete the following statement:
As the parents and/or legal guardians
of_____
(Please Print) First Name Middle Initial Last name.

For and in consider of our child's or their horse's participation in any riding or observing of any activity conducted on these premises we have read the releases of liability, and we expressly agree that the terms and conditions of said release of liability shall apply to and be binding upon us and our minor child insofar as it pertains to his or her participation and to any injury, death, or damage said minor child or his/her horse may sustain of cause as a result of said participation.

Signature of Parent/Legal Guardian: _____ Date: _____

Appendix F

Acknowledgment Form

Unbridled Hope, INC
Covid-19 Acknowledgement of Risk and Acceptance of Services

I, _____ (Patient Name), am aware of the risks of contracting Covid-19 while receiving face to face services from Unbridled Hope, Inc at this time of the pandemic outbreak and the Idaho Governor Little's declaration of a "stay in place" declaration.

I am aware of the options for remote services including, telephonic and video telehealth as allowed by insurances (Optum, CMS, Blue Cross etc.) and State Licensing Board recommendations during this Pandemic outbreak. I am also aware that face to face services increase my risk of contracting and passing on the Covid-19 or Coronavirus and agree to hold harmless Unbridled Hope, Inc, it's employees and all other individuals I may come in contact with during this interaction and receiving of services.

I agree to and will follow all guidelines for personal hygiene, personal safety and public safety as recommended by Unbridled Hope, Inc, and my individual provider/practitioner. This may include, but is not limited to, waiting in my vehicle and/or home until I am asked to enter the building/vehicle either in person or via telephone; washing my hands prior to each session; use of hand sanitizer upon request; wiping down surfaces with disinfecting wipes and/or wearing a protective medical mask and/or gloves.

I agree to cancel my services should I have within the previous 24 hours to 2 weeks personally exhibited or have been in contact with someone who has presented with illness including cough, sneezing, fever, chest congestion or additional signs of potential spread of any virus or bacteria/disease. In addition, I will follow the recommendations of my provider once I have notified them of these risks in regard to my future services during this pandemic.

Unbridled Hope, Inc will engage in regular cleaning and sanitizing of horse tack, grooming supplies and office, doors, and frequently touched areas in-between clients and on a daily basis as recommended by the CDC and our contracted Veterinarian for the safety of clients, employees, volunteers and horses.

I am signing under my own free will and choice and agree to follow these and hold harmless all individuals associated with or through my services acquired from Unbridled Hope, Inc.

Client Name: _____Date: _____

Client Signature: _____

Parent/Guardian Name: _____Date: _____

Parent/Guardian Signature: _____ Witness Signature: _____

April 1, 2020 COVID-19 Liability Waiver/Release

Appendix G

Release of Liability

Unbridled Hope, INC, Release of Liability

WARNING
Under Idaho Law, an equine professional is not liable for an injury to or the death of a participant in equine activities resulting from the inherent risks of equine activities, pursuant to Title 6 Chapter 18 Idaho Equine Activities Immunity Act

I, the undersigned, warrant and agree that I will make no claim or file suit for any injury to person or property, or for any loss or destruction of any article of any kind or nature in connection with my participation with Unbridled Hope, Inc. I understand that Unbridled Hope, Inc, nor their officers, contractors, or staff accept any responsibility for accidents, damage, injury, or illness to the riders, horses, members, sponsors, agents, spectators, or any other person or property owner in connection with operation of Unbridled Hope, Inc. I understand that there are inherent risks in my participation and those risks are assumed by me. I fully understand that animals (horses) and conditions are unpredictable and that the risk of injury or death is inherent to the activity of horseback riding and/or being around horses. I fully assume the responsibility for the risk of injury or death caused by my contact with horses and horseback riding. I completely release Unbridled Hope, Inc, their agents, and contractors from any and all liability for any and all injuries or death to me caused by my contact with horses and/or horseback riding. Signing of this form binds me to this hold harmless agreement. Furthermore, I give permission Unbridled Hope, Inc to discuss with any referring parties how this program can benefit myself or my child. I understand that there is physical contact between the student, the instructor, and volunteer during a therapeutic session. This document will be constructed under the laws of the State of Idaho.

Participant Name_____ Date of Birth_____
Mailing Address_____
City _____ State_____
Zip_____
Telephone_____ Email _____
Signature_____Date_____
___
(Participant or parent/guardian if minor)

PHOTO AND VIDEO RELEASE

I hereby grant Unbridled Hope, Inc permission to take or have taken still or moving photographs and videos and authorize Unbridled Hope, Inc Center to reproduce said photographs and use them at their discretion (i.e., brochures, websites, etc.)
Consent for photographs: YES _____ NO _____
Signature_____ Date _____
(Participant or parent/guardian if minor)

Release Form 4/2019

Appendix H

Eligibility Criteria for Study

	Eligibility Criteria for Study
Title	Effectiveness of equine-assisted activities and therapies treating veterans with PTSD symptoms.
Name	
Phone	
Address	
Email	
PTSD Symptoms (yes or no) Please explain	
Other Diagnosis	
Height & Weight	
Allergies	
Phobias	
How did you hear about the study?	
Why do you want to participate?	
Can you commit for the entire trial period?	

Are you willing to ride horses?	
Do you have any physical disadvantages?	
Willing to work in a group EAAT setting?	

Appendix I

Informed Consent Form

A. PURPOSE AND BACKGROUND
Melissa Child, a Master student in the Department of Social Work at Northwest Nazarene University is conducting a research study to assess the outcomes of equine-assisted activities and therapies (EAA/T) in treating veterans experiencing symptoms relating to PTSD. The proposed is quantitative, randomized experimental study; pre, mid, post, and 2-month post-tests will be administered to assess the behavioral changes.

You are being asked to participate in this study because you are a healthy volunteer, over the age of 18.

B. PROCEDURES

If you agree to be in the study, the following will occur:

1. You will be asked to complete paperwork to participate in Equine Assisted Activities and Therapies.
2. You will be asked to fill out the PTSD Checklist for DSM-5 (PCL-5) four times throughout the study.
3. You will be asked to participate in QEEG brain mapping three times throughout the study.
4. You will be participating in a group setting once a week for 8-weeks at your scheduled time.

These procedures will be competed at Unbridled Hope and Allied Health Care.

C. RISKS/DISCOMFORTS

1. Some of the discussion questions may make you uncomfortable or upset, but you are free to decline to answer any questions you do not wish to answer or to stop participation at any time.
2. Confidentiality: Participation in research may involve a loss of privacy; however, your records will be handled as confidentially as possible. No individual identities will be used in any reports or publications that may result from this study. All data from notes, audio/video tapes, and disks will be kept in a locked file cabinet, password protected computer or in password protected files. In compliance with the Federal wide Assurance Code, raw data from this study will be kept for three years, after which all raw data from the study will be destroyed (45 CFR 46.117).
3. Only the primary researcher and the research supervisor will be privy to data from this study. As researchers, both parties are bound to keep data as secure and confidential as possible.

D. BENEFITS
You may see an improvement in PTSD symptoms.

E. PAYMENTS
You will receive a $25 incentive for each tie they test, pre, mid, post, and 2-month follow-up. To be paid at the 2 month-follow-up.

F. QUESTIONS
If you have questions or concerns about participation in this study, you should first talk with the investigator. Melissa Child can be contacted via email at mchild@nnu.edu, via telephone at 253-279-7923. If for some reason you do not wish to do this you may contact Dr. Lawanna Lancaster, Dean of the College of Behavioral and Social Sciences at Northwest Nazarene University, via email at LKLancaster@nnu.edu, via telephone at 208-467-8372 or by writing 623 S. University Blvd, Nampa, Idaho 83686.

Should you feel distressed due to participation in this, you should contact your own health care provider.

G. CONSENT
You will be given a copy of this consent form to keep.

PARTICIPATION IN RESEARCH IS VOLUNTARY. You are free to decline to be in this study, or to withdraw from it at any point. Your decision as to whether or not to participate in this study will have no influence on your present or future status as a student at Northwest Nazarene University.

I give my consent to participate in this study:

_____ _____

Signature of Study Participant **Date**

I give my consent for the interview and discussion to be audio or video taped in this study:

_____ _____

Signature of Study Participant **Date**

I give my consent for direct quotes to be used in this study:

_____ _____

Signature of Study Participant **Date**

_____ _____

Signature of Person Obtaining Consent **Date**

THE NORTHWEST NAZARENE UNIVERSITY INSTITUTIONAL REVIEW BOARD HAS REVIEWED THIS PROJECT FOR THE PROTECTION OF HUMAN PARTICIPANTS IN RESEARCH.