

EQUINE ASSISTED PSYCHOTHERAPY: LOWERING SYMPTOMS OF
PSYCHOLOGICAL DISTRESS IN VETERANS

A Thesis

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Dakota Elloise Broadway

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ABSTRACT

This study conducted a meta-analysis in order to determine the efficacy equine assisted psychotherapy (EAP) has on lowering symptoms of psychological distress in veterans. Existing literature focuses on how EAP is effective for child populations, however, this study was designed to focus on the use of horses and horse care as a means of intervention for adults. The methodology for this study was based off Nimer and Lundahl's (2007) procedures from their meta-analysis on animal assisted therapy. Effect sizes across studies were calculated and outcome measures including psychological functioning, social functioning, and interpersonal functioning were grouped together in order to determine heterogeneity among studies. Results suggested mixed interpretation among effect sizes. While some outcome variables suggested positive improvements in symptoms, others suggested no change. Additionally, heterogeneity among studies suggested no standardization in methodological procedures. In conclusion, EAP for veterans lacks enough information to determine its efficacy across studies.

DEDICATION

This study is wholeheartedly dedicated to my first horse, who taught me unconditional love and provided me with memories and experiences that I will never forget.

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LIST OF ABBREVIATIONS

EAP	Equine Assisted Psychotherapy
OEF	Operation Enduring Freedom
OIF	Operation Iraqi Freedom
OND	Operation New Dawn
TBI	Traumatic Brain Injury
PTSD	Post-Traumatic Stress Disorder
CPT	Cognitive Processing Therapy
ECT	Electric Convulsive Therapy
APA	American Psychological Association
EMDR	Eye Movement Desensitization and Reprocessing
THR	Therapeutic Horseback Riding
CBT	Cognitive Behavioral Therapy
EAGALA	Equine Assisted Growth and Learning Association
PATH	Professional Association of Therapeutic Horsemanship International
AEE	Association for Experiential Education
EAT	Equine Assisted Therapy
NARHA	North American Riding for the Handicapped Association

PREFACE

The basis for this research was to help better understand unique opportunities that treatments can provide for veterans. When joining the military, individuals are signing up to experience traumatic events in order to protect our nation. With that being said, veterans and all military personnel deserve to have a plethora of treatment options available to them. This study attempts to provide more information with respect to equine assisted psychotherapy in order to help guide the direction of further research on the subject.

Introduction

This study conducted a meta-analysis in order to determine the efficacy that Equine Assisted Psychotherapy (EAP) on lowering symptoms of psychological distress in veterans. Existing research with respect to EAP focuses on using horses as therapy assistants for treating *children* with psychological disorders. However, for this study the primary focus was on providing further support for the use of horses and horse care as a means of intervention for *veterans* seeking psychological treatment. When analyzing research regarding therapy for the veteran population, studies tend to be highly focused on creating successful one-time sessions/workshops due to low therapy retention rates. Although these workshops and one-time sessions are extremely impactful, finding a form of therapy that draws veterans back for long-term treatment needs to be explored. With that being said, the primary aim of this study was to analyze results and overall themes from previously conducted experiments in order to determine the extent of heterogeneity, efficacy, and effect size in which EAP has on treating veterans. With the information provided, outcome differences among components such as gender, race, specific psychological disorders, and specificity of treatment procedures was further explored. If proven successful, the potential impact of these results could provide veterans with an alternative approach to treatment that utilizes a unique therapy environment.

Chapter 1

Background

History suggests that therapeutic horseback riding can be traced back to the 1600's, where riding was prescribed for issues such as gout and neurological disorders (Lessick et al., 2004). Although this form of treatment has been around for a considerable amount of time, surprisingly, EAP was not *empirically* introduced to research until 2005 (Lee et. al, 2015). Since gaining initial notoriety through a form of treatment referred to as “hippotherapy”, therapeutic riding has developed considerably. During hippotherapy, physical, occupational, and speech therapists help clients achieve goals by using horses to assist in *physical* rehabilitation. By creating a foundation to improve neurological function and sensory processing, the dynamic movement of the horse is meant to influence the rider's posture, balance, and mobility without the rider having to worry about controlling the horse (Fitzpatrick, 1997). From hippotherapy, different variations of clinical therapeutic horseback riding have emerged including equine assisted psychotherapy. With that being said, it must be noted that researchers and clinicians tend to use different terms to describe the integration of horses into therapeutic treatment. Common terms for EAP include, “equine assisted therapy”, “equine assisted counseling”, “equine assisted activities”, “experiential equine activities” and “therapeutic riding”. Each term may reflect different tasks in which an equine companion is used during treatment. For example, “therapeutic riding” often refers to participants who are actually riding the horse, while terms such as “experiential equine activities” are likely referring to participants completing tasks from the ground. For the sake of this study, the term “equine assisted psychotherapy” was used to reference the general use of horses in psychological treatment.

Human-animal Bond

So, why are animals beneficial to the human psyche? This can be easily explained through examination of historical and cross-cultural documentation. Dating back to prehistoric times, researchers have recognized the gradual development of human-animal bonds, with the oldest archeological evidence focusing on the domestication and socialization of wolves as companions. At the time, wolves provided value to humans with particular focus on their keen senses, loyalty as guardians, and partnership in surviving (Nepps, Stewart, and Bruckno, 2014). Through sacred rituals such as mummification and burials, ancient cultures in countries such as Egypt have chronicled the respect in which both dogs and cats were treated by humans. It is suspected that humans became affiliated with larger animals, specifically horses, around 3500 B.C. During this time horses were distributed amongst people for domestic use, often completing tasks that required heavy lifting/pulling (Warmuth et. al., 2012). What makes horses particularly special when considering the strength of human-animal relationships, is the idea that strong bonds between the two species had to be developed in order for horses to allow human predators on their back. It can be assumed the human connection with horses represents much more than just trust and reliance, as the time and energy that must be provided to develop this bond is considerably great. From spiritual traditions to feelings of interconnectedness, it is clear that humans have drawn symbolic meaning from their relationship with animals - with emphasis on horses in particular (Walsh, 2009, p.463).

With all considering, the natural draw that humans have to horses can potentially provide clinicians with an advantage when trying to overcome barriers faced when working with veteran clients. In the military, physical and mental toughness are highly regarded. The fact that horses cannot be easily overpowered can be beneficial when treating this population as horses are

known to pick up on its riders' emotional cues (Nakamura, Takimoto-Inose & Hasegawa, 2018). With that being said, if the rider feels at unease, the horse will feel at unease and that unease is closer to a force of nature than to someone the patient can contend with. While entirely possible, it is more difficult to get angry at an animal or question the merits of its judgement. This means that patients can choose how open to be depending on what their comfort levels are. Equine-assisted psychotherapy serves as a model for using horses' interactions with people as allegories for dealing with real emotional and mental issues. By allowing horses to act as confidants, clients eliminate any danger in being emotionally vulnerable without judgement.

Taking a deeper look into the human-animal relationship which occurs during equine-assisted psychotherapy, what is perhaps most significant, is the way veterans communicate with horses and the way they can be used to return the patients to mental equilibrium. Horses are empathetic; they can feel if a person is upset, and that causes conflict during regular interactions and when riding. This forces the veterans to confront the conflicts within themselves in a way which invites less criticism. The horse does not express an articulated criticism of the veteran, and does not imply one in the same way, but instead the unease between human and horse stands on its own (Voelpel, 2018). This means that in order to gain a peaceful, harmonious relationship with the horse, the patient has to address those issues internally. This makes horses particularly good for therapy, especially for veterans who have a hard time talking to counselors. With all being said, horses prove to be a compatible match due their instinctive nature. Currently, equine assisted therapy lacks accessibility due to facilities often being far away from where veterans live and not having access to EAP as an insured benefit for adults. However, with continuous support and more research, a push to add EAP as a covered benefit and more accessible form of therapy could prove impactful for veteran populations.

Veteran's Mental Health

Regarding the availability of mental health resources for veterans, the United States provides free medical support for military personnel and veterans. As mentioned earlier, there is an evident lack of variety and availability in reference to long-term treatment options for those seeking psychological help. With the pass of the "Mission Act", veterans have the option to seek treatment through different resources in the community, however many typically turn to their local Veteran's Affairs (VA) Hospital in order to receive medical/mental health services. While the VA employs some of the top physicians and clinicians, wait times for appointments are often longer than the appointment itself. Data suggest low retention rates among veterans seeking psychological treatment, with much of this being attributed to receiving services they feel do not suit their interest or needs. Recent findings implicate how low retention rates are most reportedly due to veterans disliking the office setting or "couch therapy" environment. Even though treatments exist and are positively reviewed, large proportions of trauma-exposed veterans either drop out of treatment, refuse available treatments, reportedly do not see progress with their program, or are not interested in receiving help through the modalities offered (Vujanovic et. al, 2013, p. 3). Having said that, Gomez (2016) found:

"...90% of veterans wanted mental health care, however almost half of the veterans who wanted mental health care received no mental health care, more than half of those vets who received care received medication management, and almost half of those vets who received care were matched with a form of mental health care that differed from their preference" (Gomez, 2016, p. 2).

Other reported reasons for not seeking help emphasize that social expectations and stigmas are factors in non-treatment. These reported difficulties can be especially challenging to

overcome for both male and female veterans. According to Pietzak et al. (2009), veterans and active duty soldiers who are diagnosed with a psychiatric disorder are twice as likely to report concerns related to stigma when it comes to receiving care compared to those who do not screen for a psychiatric disorder. To add to this, demographic factors including age, gender, race, psychiatric conditions, and negative attitudes to health care overall, contribute to understanding specific characteristics that may contribute to the type of people affected most by stigma related concerns. In a study conducted by Pietzak et al. (2009), participants who tested positive for a psychiatric disorder endorsed items associated with embarrassment, being perceived as weak, not knowing where to get help, and having difficulties scheduling appointments. Pietzak et al. (2009) suggest societal views and low levels of unit support contribute to beliefs held by participants in their study. Although these issues exist, these beliefs are modifiable as they are often based on “stereotypes and lack of accurate information about evidence-based psychotherapies for combat-related psychiatric disorders” (Pietzak et al., 2009, p.1121). Additional studies such as, Lorber & Garcia (2010) provide support for these assumptions by analyzing the effect that traditional masculinity had on male veterans seeking help. Researchers found that during the participants reported time of service, participants stated that military culture endorsed an environment which pushed masculine values, ultimately impacting OEF/OIF veterans outlook about change. Masculine socialization in military settings may be more intense than nonmilitary settings due to military training focusing on instilling emotional control. Emotional control is said to be key to promoting survival and completion of missions (Lorber & Garcia, 2010). With that being said, expression of emotions can be perceived as “weak”, leading to emotional suppression.

For female veterans in particular, military sexual trauma or MST (i.e., sexual harassment, sexual assault) remains prevalent among the veteran population. Exposure to environments like

this add to the risk of developing psychological symptoms such as PTSD and depression (Pulverman, Christy & Kelly, 2019, p.1). Statistics show there were roughly 5,061 reports of military sexual trauma in the fiscal year of 2012, however, the Department of Defense suggests this number is vastly under reported (Niessen-Derry, 2015). Niessen-Derry reported that “In 2009, an estimated 480,000 (32%) of female veterans were enrolled in a VHA health care system and while 120,000 likely experienced some kind of MST, only 0.01% (or about 4,800) have received on-going mental health services” (p. 9). Due to the nature of military environment, female veteran survivors of military sexual assault are often compared to victims of familial abuse. This is because “Survivors live with, or near, their perpetrators, increasing their vulnerability for re-victimization” (Niessen-Derry, 2015, p.6). Most often, women become conflicted about receiving help due to who the perpetrator is (this may be because the perpetrator is of higher rank). Whether female or male, veterans face barriers that prevent them from getting the help they need. Being able to explore all possible treatment options is crucial for successful recovery.

Psychological Disorders Affecting Veterans

Anxiety, depression, PTSD, traumatic brain injury (TBI), schizophrenia, bipolar disorder, and substance use are among the most commonly diagnosed psychological disorders in the veteran population (Trivedi et al., 2015). Data collected from government agencies, such as the Veterans Affairs Hospitals (VA), suggest more than 1.7 million veterans have received treatment from a VA mental health program in the year 2018 alone (VeteransAffairs.org). Of these disorders, depression and PTSD are among the highest reported diagnosis of mental illness. Post-traumatic stress disorder (PTSD) can develop after exposure to a traumatic event and is defined as an experience in which an individual may be subject to a situation that is shocking, scary,

dangerous, or life-threatening (DSM-5, 2013). Traumatic events include natural disasters, intense vehicle crashes, or acts of violence. Signature symptoms of PTSD include lack of emotional control, intense thoughts or feelings about the trauma experienced, revival of the event through flashbacks or nightmares, avoidance of situations or people that remind those affected of the traumatic event, and/or sensitivity to loud noises and unexpected physical touch (American Psychological Association, 2017). PTSD is diagnosed in approximately 3.5 percent of U.S. adults and can be additionally diagnosed in children, teens, and elderly (American Psychological Association, 2013). Exposure to environments in which individuals experience actual/threatened death and/or serious injury is an important element in understanding why veterans are highly susceptible to developing this disorder.

Current prevalence of PTSD among veterans varies by service area. Data collected in 2016 revealed there are roughly 20.4 million living veterans in the United States (Department of Veterans Affairs). Findings suggested that mental health diagnosis in military personnel has increased 65% since 2001. To add to this, 40% of U.S. soldiers reported presenting a psychological disorder (Ferruolo, 2015). In a given year, 11-20% of veterans who participated in Operations Iraqi Freedom (OIF) and Enduring Freedom (OEF) experienced symptoms of PTSD. For veterans who fought in the Gulf War (Desert Storm), 12% reported having PTSD within a given year. Additionally, data collected from personnel who fought during the Vietnam War, suggested 15% of Veterans had been diagnosed with PTSD in a given year and roughly 30% had been diagnosed at some point during their lifetime (VeteransAffairs.gov).

With respect to utilizing EAP, existing research on veterans tends to be focused on reducing symptoms of PTSD. In a study conducted by Earnst (2017), veterans were treated to equine therapy using techniques from several commonly used traditional approaches (e.g.,

cognitive, emotional, experiential, and physiological treatment: Equine Assisted Activities; the Community Resilience Model, a psychoeducation on the biological basis of trauma; Eye Movement Desensitization and Reprocessing (EMDR); Integrated Breathing and Movement, a form of therapeutic martial arts; and Brainwave Optimization). Data from this study suggest EAP can be a “powerful intervention” when treating PTSD. Measures obtained indicated significant improvements in anxiety, depression, dissociative experiences, hope, and quality of life (Earnst, 2017). Results such as these are eye opening, making it even more critical to find interventions that work or are suitable for the client.

Post-traumatic stress disorder (PTSD) is a serious mental health condition involving a pathological response to traumatic event exposure that encompasses behavioral, physiological, emotional, and/or cognitive symptoms. Military veterans have a particularly high level of exposure to traumatic events in the course of their service duties and, as such, experience PTSD at higher rates than the general American population; veterans who have deployed in combat, for example, may experience rates of PTSD exceeding 30% (Kinney, Eakman, Lassell, & Wood, 2019). Moreover, factors such as the general societal stigma against mental health conditions can prevent military veterans from seeking out conventional forms of therapy (Craven, 2013). Alternative therapeutic approaches, such as equine-assisted psychotherapy (EAP), have been developed and used as a potential way to deliver therapy to veterans with psychological diagnosis who may not want to utilize, or who may not respond to, more conventional therapies. EAP is a form of alternative therapy that combines therapeutic objectives with unmounted and mounted equine goals and activities in an environment that includes both equine instructors and credentialed mental health professionals. The present literature review was developed with the purpose of evaluating the available research on EAP as a therapeutic modality for symptoms of

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PTSD among American military veterans to determine whether EAP is associated with sufficiently effective results that could recommend its use.

Chapter 2

Literature Review

Equine-assisted Psychotherapy has been gaining traction in recent years as a form of treatment for veterans especially (Harbeson, 2018). This fairly new treatment method has caught the attention of researchers who have added to the documentation on the subject quickly. Equine assisted psychotherapy is a novel therapy and has become popular because of the effectiveness it has on helping people overcome trauma. Although group therapy is another often used strategy due to the increased ability for veterans to relate to one another, for some, even interacting with fellow veterans can be difficult at first (Harbeson, 2018). It is also the case that many veterans, and others with PTSD, can find it challenging to communicate verbally and get to a place where they feel secure articulating their issues.

What is Equine Assisted Psychotherapy?

Equine assisted psychotherapy is a form of treatment defined by using nonverbal communication between horses and clients to elicit behavioral patterns, emotions, and cognitive awareness (Lee & Makela, 2015). During treatment, horses are used as a metaphor for problems that may occur in life and as a mirror to how one interacts with the world around them. Although there are different variations in which equine assisted psychotherapy can be executed, the goal of each form focuses on the ability to elicit experiential activity which in turn facilitates psychosocial learning, promotes internal processing and group processing, and reinforces the lessons learned (Ferruolo, 2015, p.54). With that being said, it is important to note there is no standardized form of equine assisted psychotherapy. Instead there are broad sets of principles to follow from which therapist can individually tailor treatment to incorporate techniques from various approaches.

Traditional Theories Integrated into EAP

Gestalt Therapy

Integrated techniques used in EAP sessions are derived from the experiential learning theory, cognitive behavioral theory, and mindfulness theory. The experiential learning theory was founded by David Kolb (1984) and was influenced from the works of John Dewey, Kurt Lewin, and Jean Piaget. Kolb's theory provided a holistic approach to learning while using role playing, props, and guided imagery in order to re-enact or re-create situations that may cause difficulty with perceived conceptions. The experiential model emphasizes how cognition, environment, and emotions all impact the process of learning. According to Kolb (1984), there are four components with respect to "grasping" an experience and transforming it into new theories about the world. How an individual "grasps" an experience, can be explained in two ways. First, through concrete experience and second, by abstract conceptualization. Concrete experience gives individuals information which can be further used for reflection and from there, assimilation of abstract concepts can be created. Once this is done, reflective observation can be made aiding in active experimentation. This model is utilized to treat eating disorders, behavioral disorders, anger management, trauma, and compulsive behaviors. Existing data suggests that incorporating the use of experiential learning into equine assisted therapy has been highly successful. Bivens et al. (2007) collected data from a group of participants ($N=31$) in order to analyze the effect of equine assisted therapy (utilizing an experiential therapy approach) had on clients seeking treatment. Participants from this study completed questionnaires on three separate occasions. The first set of questionnaires (e.g., Brief Symptom Inventory (BSI) and Personal Orientation Inventory (POI) were administered prior to treatment, the second were administered immediately following treatment, and the third were administered at a six-month follow-up.

Bivens et al. (2007) argued that combining equine activities with experiential learning facilitates the opportunity to “work through unfinished business”. Using Gestalt techniques, experiential learning mixed with traditional equine activities, such as, role-playing, sculpting, role-reversal, and mirroring, help clients re-experience events. Gestalt equine therapy is considered one of the oldest forms of equine facilitated psychotherapy, creating an environment which promotes growth of relationships, gestalt therapy is designed to explore self-awareness and self-growth (Skidmore, 2018, p.48). Bivens et al. (2007), made note “...where as it may be fairly easy to dismiss a transference reaction to a therapist or group member as a legitimate reaction to the target’s shortcomings or inappropriate actions, it is much more difficult to attribute transference reactions to shortcomings, inappropriate behaviors...of a horse” (p. 259) . Results from Bivens et al (2007) four-and-a-half-day residential program were determined by a $p < .05$ significance that was adopted for the tests administered (e.g., Bried Symptom Inventory, Personal Orientation Inventory). Effect size for the BSI showed significant decrease in BSI scores from pretest to posttest. There was no significant change from posttest to follow-up occurred, however, results from the POI suggested a significant effect from pretest to posttest. To further support the use of horses in experiential approaches, Boss et al. (2019), focused on how using equine assisted interventions (EAI) can help military veterans diagnosed with PTSD transition from active duty to civilian life. After reviewing articles, nine studies were selected with findings that suggest the efficacy of EAI for PTSD were equally mixed with significant and non-significant findings. To elaborate, in one study (Johnson et al., 2018) researchers reported significant findings when using therapeutic horseback riding (THR), whereas in a different study (Lanning et al., 2017) who also used THR, reported findings that were non-significant. Boss et al. (2019) attributed the cause of PTSD measures producing non-significant findings to small sample size (largest was

N=38), high attrition rates, and potential effects caused by treatment sought by participants during the interim. In regard to psychosocial measures, when examining mental health states, findings were largely non-significant, however like PTSD measures, mental health states trended in the hypothesized direction. Boss et al. suggest non-significant findings could be due to effects between short-term and longer-term interventions. Significant findings with respect to reduction of anxiety and depression were reported in which Gestalt Therapy, mindfulness, grounding techniques, and components of natural horsemanship were also reported. Following the individual program, depression measures returned to pre-intervention levels while participants in the couple's program retained outcomes, suggesting the couple's program may facilitate better long-term psychological outcomes. Data from literature such as Boss et al. (2019), are unique because it provides a small snapshot of what is occurring across research. It additionally provides assumptions to what direction research needs to go in by compiling data.

Mindfulness Theory

Derived from Buddhist practices that emerged years ago, Jon Kabat-Zinn (1979) introduced mindfulness as an approach to use in psychotherapy. Through meditative practices and a goal of becoming present-oriented, mindfulness is often intertwined into other therapeutic approaches such as CBT in order to help clients regulate emotions. By reducing stress and promoting health, mindfulness is tailored to help improve areas of the brain that assist in attention and concentration (Tang et al., 2015, p.1). Mindfulness meditation pinpoints three significant stages in which mindfulness is achieved. The first stage requires the client to engage in "effortful doing". The second stage focuses on "efforts to reduce mind wandering". The third and most advanced stage of mindfulness focuses on becoming an "effortless being" (Tang et al., 2015, p.2). Mindfulness therapy is executed in a manner that is nonjudgmental to the client. In

Reive's (2019) quasi-experimental study, researchers used mindfulness techniques such as self-reflection and insight, incorporated with equine therapy, to address mental health concerns (Reive, 2019). Specific aims of the study looked to identify the effect that mindfulness had on sociodemographic characteristics as well as overall psychological well-being. Using convenience sampling, participants ($N=18$) were exposed to new concepts. The human connections with animals can be empathetic and can develop interdependent relationships. That said, horses have a long history of being faithful companions to humans and quite comforting to their handlers. Due to the length of time during which horses have been close to humanity, there is a lot of information on how to interact with horses, making them fairly safe animals to conduct therapy with. Reive (2019) makes the point that many of the processes used with equines have already been explored with other animals. With that being said, there is extensive literature having to do with mindfulness and working with animals in general.

Touching on many of the same points as Reive's (year) study, Powalski (2018) further examined the interactions between veterans seeking therapy and equine therapy animals. By reviewing multiple case studies from veterans who have participated in this modality, feedback from participants responded positively overall regarding therapy and almost universally felt positively about their experiences using equine assisted psychotherapy. Responses such as these are good indicators of how this form of treatment affects retention rates. Powalski's (2018) study found there are a lot of psychological benefits to using EAP, by delving into much of the foundational theory which informs and supports the case studies performed by the research team. Furthermore, many aspects to equine care are considered in this study, including the relationship between human and horse above and beyond simply riding the horse. Actions such as feeding, petting, caring and generally bonding with the horse are as significant as actually riding. Horses

can be a great way to move on from a military lifestyle to the civilian lifestyle. In contemporary times, horses do not have a large role in the military and learning to be with horses can be a useful growth strategy for those who are having trouble moving forward.

Equine Assisted Growth and Learning Association (EAGALA)

As mentioned before, the use of the term “equine assisted psychotherapy” most often describes several different components of therapy that involve using horses. By incorporating principles from the Association for Experiential Education (AEE), Equine Assisted Growth and Learning Association (EAGALA) is an approach to EAP that utilizes the experiential approach in treatment. In addition to focusing on enhancing problem solving skills, there are several goals derived from AEE’s principles that are used in order to achieve meaningful interactions. These principles include, 1) learning from chosen experiments in order to reflect and draw critical analysis and synthesis, 2) requiring clients to take action and hold themselves accountable for outcomes, 3) actively engaging in the learning process by asking questions, investigating and problem solving, 4) participating emotionally and socially all while being authentic, 5) creating an understanding of how to use interactions as a basis for future experiences, 6) acknowledging experiences may be successful or may end in failure because experiences cannot be completely predicted, 7) examining one’s values, and 8) overall, endorsing learning developed with the possibility of making mistakes (Notgrass and Pettinelli, 2015, p.165).

EAGALA’s push to make equine assisted therapy standardized could help researchers provide clinicians with a more well-rounded guide to executing therapy procedures. Results from studies, such as Arnon et al. (2019), provided a great example of how treatment specificity is important to patient recovery. Using an eight-session equine assisted therapy (EAT) treatment, Arnon et al. (2019) examined the initial effects that EAT has on treating military veterans with

post-traumatic stress disorder (PTSD). The manual developed for this study was built to provide progressively complex and challenging exercises with the goal of helping patients connect and communicate with the horses, as well as to ensure a PTSD-specific treatment focus. Due to lack of a standardized protocol, interviews with practitioners, site visits at existing EAT facilities, and a review of procedures from past research and literature, were examined in order to develop a treatment protocol and manual for this particular study. Treatment sessions for this study primarily followed EAGALA guidelines with emphasis on experiential learning. From the results, Arnon et al. (2019) found patient satisfaction to be high, with zero attrition. Additionally, some patients experienced clinical improvement, however, when assessed at 3-month follow-up it was clear improvement deteriorated. Arnon et al. (2019) suggest this may be due to lack of treatment specificity or of persisting effect.

EAGALA's model, with respect to executing EAP, is achieved through trainings, certifications, and a code of ethics. Choosing people who are already professionals in their field, EAGALA aims to integrate professional training into EAP. In order to become certified by EAGALA, practitioners must abide by its code of ethics and maintain professionalism through continued education in EAP and their field. Working as a team, two people are paired in order to facilitate its practice. One of the team members must be a mental health professional while the other is an equine specialist professional. Regulatory standards with respect to EAGALA describe mental health professionals as "...clinicians who carry a recognized license to practice psychology in the United States". Additionally, equine specialists are referred to as individuals with "...extensive training and experience in horse psychology and behavior" (Notgrass and Pettinelli, 2015, p. 166). By coordinating activities, mental health professionals and equine specialists are able to create an authentic learning environment designed to promote an

experience rather than accomplish a task. The reason for using horses in therapy, as described by EAGALA (2018) is due to the fact that, much like humans, horses are social animals with distinct roles among their peers. They have attitudes, personalities, changes in mood, and at times can be stubborn and horses respond instinctually to non-verbal messages providing automatic feedback to clients due to these natural responses. Furthermore, EAP is explained as a modality that is designed to translate real-life challenges rather than build horsemanship skills. With all considering, EAP is nondirective which helps build awareness and facilitate opportunities for interaction.

During treatment, facilitators observe participants while maintaining little instruction beside feedback. Feedback is based on the participants ability to complete “shifts, patterns, unique moments, discrepancies, and self-awareness” (SPUD’S) (Notgrass and Pettinelli, 2015, p.170). A “shift” is defined as a change in either the horse or the participant that indicates a change in the process. For example, the participant suddenly becomes talkative after displaying silence. A “pattern” is defined as a behavior that has occurred three or more times, which implies that the behavior is significant. When something “unique” occurs, it should be noted what is happening during this time as these moments can signify a dramatic shift and can generate experiences which can be later reflected on. A “discrepancy” typically occurs when in non-verbal and verbal communication do not match up (i.e., cognitive dissonance). These moments are especially important because they create learning opportunities that aim at becoming more aware of participant’s actual emotions and behaviors (Notgrass and Pettinelli, 2015, p.170). Lastly, the “apostrophe S” is meant to place emphasis on drawing attention to personal reactions of the facilitators (i.e., “self”). By creating a team, the mental health professional and the equine

specialist are able to check each other's reactions in attempt to minimize personal influence. Using SPUD'S, ideas and concepts can remain consistent by focusing on the here-and-now.

Difficulties controlling emotions is a commonly reported symptom among veterans (Maguen et. al, 2010). Recognizing emotional irregularities can be achieved through EAP using various techniques. As mentioned earlier, horses are sensitive to identifying human emotion, thus, emotional control is an important aspect to equine assisted therapy. In an activity called "Come with Me Please", therapists incorporated components of mindfulness and cognitive behavioral approaches, however, core components were based on the experiential model. During this activity, participants are paired with an equine companion and asked to lead their horse around an arena. This exercise is meant to establish rapport between the participant and their horse companion (Ferruolo, 2015, p. 3). What makes this exercise particularly important is how it is meant to evoke moments of frustration for the participant as well as develop a sense of courage when addressing fearful situations. How the participant reacts to the horse is key throughout the session. If the participant develops a good relationship with the horse and in turn facilitates trust, the horse will listen to what the participant requests. However, if the participant reacts negatively, and the horse senses it, problems can arise in developing a relationship and trust between the two focuses on becoming cognizant of how people address situations and take control of their emotions in moments of uncertainty. Activities incorporated into EAP such as "Come with Me Please", allow participants to experience situations that mirror interactions that occur in daily life. It focuses on becoming cognizant of how people address situations and take control of their emotions in moments of uncertainty. Research conducted on this specific activity describe instances in which participants, most notably an individual who typically used fear and intimidation to get what he wanted, were able to use an introspective process along with group

processing that followed. This participant reported being able to focus on using fear and intimidation to get what he wanted in order to change how he interacted with the world (Ferruolo, 2015). By integrating natural horsemanship into the therapy process, techniques which endorse a horse's natural instincts were used to develop language rather than force. Instead of trying to teach someone "who is boss", participants are taught to interpret body language and behaviors (MacLean, 2011).

Veterans have found that learning elements of psychology and interacting with horses can be an effective method of treatment (Krob, 2015). There is the idea of bonding with a companion animal and empathizing with it, the bond between horse and rider/caretaker can be very comforting to both the human and the animal. The social aspect of horseback riding, this is an athletic, proactive activity which allows veterans to bond with their peers in a productive pursuit. These kind of prosocial behavior helps veterans with trauma to find their center and to heal the wounds of warfare. Sometimes, it can be difficult for veterans to connect with a person, even a therapist, at first, and the connection between rider and mount can bridge that gap and ease the transition away from isolation. The goal of the programs explored is to build trust, first the patient internally needs to learn to trust him or herself, then an animal, then increasingly counselors, and increasingly, other veterans and community members. These different levels of interpersonal healing, one-on-one discussions and socializing are all parts of a process which includes the horse as an emotional anchor the entire time. Another beneficial aspect of using horses as companion animals is that even many disabled veterans can ride them (Powalski, 2018). The horse can provide a level of mobility that the veteran may have lost, which increases the bond of companionship. Since there is a physical element to EAP, it will be closer to the kind of activity that veterans are used to, but also recreational enough to be relaxing. There is a strength to this healing process and that it has had

positive results where it has already been tried (Krob, 2015). One facility of interest is TRR's Warrior Camp, whose faculty have published their findings in the paper *TRR's Warrior Camp: An intensive treatment program for combat trauma in active military and veterans of all eras* (Steele et al., 2018). This facility incorporates equine-assisted therapy into its program, through its unique processes of its facilities and treatment methods, including the organizational structure of those treatments. Steele (2018) suggests TRR's Warrior Camp puts equine assisted treatments in context with other methods as it pertains to the way it works in larger facilities. It is stressed that the usage of horses as a piece of the puzzle towards helping veterans and makes special note that the methods used seemed to show effectiveness across a broad range of severity.

The warrior camp described is designed to help wounded veterans especially and is tailored towards that end. Because of this, all the data collected is on veterans in need of healing and emotional support. The camp takes a systematic approach towards treatment and works hard to ensure that their methods are likely to work based on the information they have. With that being said, equine-assisted therapy can be useful and is key to getting through to patients who find it difficult to make progress. The core idea is something which is essentially low commitment and undemanding when it comes to expression but is productive and contains an underlying element of emotional communication (Steele et al., 2018). Horses are undemanding, the patient can choose to empathize as much or as little as is comfortable, the horse will only respond physically and in terms of mannerisms.

Studies such as Voelpel (2018) dive deeper into the human-animal relationship which occurs during equine-assisted psychotherapy. What is most significant is the way veterans communicate with horses, and the way they can be used to return the patients to mental equilibrium. Horses are empathetic; they can feel if a person is upset, and that causes conflict

during regular interactions and when riding. This forces the veterans to confront the conflicts within themselves in a way which invites less criticism, the horse does not express an articulated criticism of the veteran, and does not imply one in the same way, but instead the unease between human and horse stands on its own (Voelpel, 2018). This means that in order to gain a peaceful, harmonious relationship with the horse, the patient has to address those issues internally, this makes horses particularly good for therapy, especially for veterans who have a hard time talking to counselors.

Professional Association of Therapeutic Horsemanship (PATH)

Another model of equine assisted therapy, developed by the Professional Association of Therapeutic Horsemanship (PATH), uses “equine assisted activities and therapies” (EAAT) for the purpose of providing treatment to individuals with either a physical or mental health disorder. PATH was originally founded under the “the North American Riding for the Handicapped Association” (NARHA), with the intention of providing effective therapeutic horseback riding for individuals with special needs. PATH incorporates a variety of activities into treatment such as therapeutic carriage driving and interactive vaulting. With respect to psychology, PATH endorses the incorporation of cognitive behavioral techniques into therapy. PATH specifically facilitates treatment using groundwork and horseback riding with participation of a licensed mental health professional (PATH, 2010). In order to become certified with PATH, professionals must attend workshops and pass a written and practical exam. This is done to ensure standards are kept at the highest level with respect to safety, ethics, and effectiveness (PATH, 2010). With respect to improvement in quality of life, Lanning and Krenek (2013) examined the effects of equine-assisted activities on veterans seeking treatment. Using Professional Association of Therapeutic Horsemanship (PATH), researchers specifically paired participants with a horse

companion (one which suited their individual needs) and from there, exposed them to either groundwork or riding activities. In addition to actual therapy, participants were given a meal and the opportunity to interact with one another along with the volunteers, and the therapeutic riding staff. From this study, data collected suggest positive feedback when reviewing questions asked, including, why participants wanted to partake in the study, what participants learned about themselves from therapy, and how working with a horse is different from working with the therapist involved (Lanning & Krenek, 2017). When describing how therapy helped them, participants' comments included "[therapy] helped build relationships outside the house" and "I talk to people. Shake people's hands". From this, emerging themes such as reduction of isolation and increased trust in others were present throughout (Lanning & Krenek, 2013, p.9). When asked about relationships that facilitated healing, participants reported the staff/volunteers and the horse were most important aspect to successful treatment. Researchers aims for this study were to address changes in quality of life indicators and depression by collecting quantitative data. Results suggest participants experienced less depression symptoms over the course of treatment. With respect to Beck's Depression Inventory II (BDI-II) the mean score did not indicate a complete drop from one level of symptoms to another, however, did show participants experienced less symptoms of depression. On the other hand, data from the SF-36v2 Health Survey, which measures quality of life indicators, suggests positive changes occurred (Lanning & Krenek, 2013)

Along with building emotional control, perceived self-efficacy, confidence, is another important component to equine assisted therapy that is used to influence cognition, affect, biological events, behavioral patterns and environmental events (Johnson et al., 2018). In a study conducted by Johnson et al. (2018), participants disclosed feelings of improved social

involvement and overall psychological well-being. This, in turn, helped facilitate an improvement in coping strategies when veterans were experiencing symptoms of PTSD (Johnson et al, 2018). Additionally, data revealed there is an 81.8% likelihood of improvement in PTSD levels after treatment using EAP. Analysis also showed that participants reported a 66.7% likelihood of having lower PTSD scores at 3 weeks, with an additional 87.5% likelihood of lower symptoms at 6 weeks (Johnson et al., 2018). The participant sample for Johnson et al. (2018) consisted of 32 males (84.21%) and 6 females (15.79%). Likewise, for Ferruolo (2015), the sample selection reports 100% of participants being males. With that being said, research analyzing the effects that equine assisted therapy has on veterans lacks diversity in regard to gender/racial background of participants. Existing data on veterans who are being treated using equine assisted therapy consists primarily of Caucasian male participants (Gomez, 2016). Although diversity is disproportionate in reported studies, it should be taken into consideration that out of roughly 2 million veterans, only 25% are considered minority individuals (this includes all racial backgrounds except individuals who fall under the “White non-Hispanic” category), and only 9.4% are women (VeteransAffairs.gov). Moreover, research literature that does include women veteran participants primarily focus on sexual trauma experienced in military settings rather than other mental health disorders developed from military service.

Equine Partnering Naturally

Equine assisted psychotherapy is additionally utilized by a group called Equine Partnering Naturally. Equine Partnering Naturally uses mindful observation in order to promote focus and encourage attention. As mentioned previously, EAP is meant to be used in conjunction with the psychologist’s professional training. Mindfulness is a concept designed to heighten individual awareness while at the same time sensing our experience (Rappaport et al., 2013).

Coupled with the guidance of a therapist, mindfulness techniques can be used to treat disorders such as depression, generalized anxiety disorder, trauma, and substance use. In a pre-test /post-test study conducted by Earles et al. (2015), researchers measured a variety of disorders consisting of PTSD, trauma emotion, generalized anxiety, depression, alcohol use, physical health, mindfulness, proactive coping, social support, life satisfaction and optimism. Using the Equine Partnering Naturally approach, data collected indicated no significant change in reported physical health, proactive coping, general perceived self-efficacy, social support, life satisfaction, or optimism. However, data suggested a significant decrease in symptoms following participation in disorders such as PTSD, emotional distress, anxiety, depression, and alcohol use. Specifically, reported symptoms of PTSD decreased from $M=50.93$, $SD=39.38$ to $M= 39.38$, $SD=16.73$ ($p < .001$), while symptoms in relation to trauma emotion decreased from $M=3.22$, $SD=0.80$ to $M=2.83$, 0.90 ($p < .05$). Reported increase in regard to mindfulness should also be noted $M=109.69$, $SD= 16.86$ to $M=123.34$, $SD=19.26$ ($p < .001$). This is important to recognize as it supports the idea that EAP can incorporate different approaches within the experiential model in order to improve multiple variables associated with PTSD (as both exhibited a very strong relationship among p-values) while at the same time lowering negative symptoms.

Traditional Therapies used to Treat Veterans

According to the VA, treatments for mental illness include medication management, psychotherapies, psychosocial rehabilitation, and recovery services. When treating post-traumatic stress disorder, therapists typically rely on trauma focused therapies. These therapies include Prolonged Exposure (PE), Cognitive Processing Therapy (CPT), Eye Movement Desensitization and Reprocessing (EMDR), and Mindfulness (Vujanovic et. al, 2013). Prolonged Exposure is a cognitive behavioral approach designed to invoke imaginal and in vivo exposure.

During treatment clients are subjected to imaginal exposure by purposely reexperiencing the trauma from memory. Similarly, cognitive processing therapy is also a type of cognitive behavioral therapy, however, therapy goals are achieved by reducing symptoms through modification of negative beliefs in order to create a new understanding of events. To add to this, mindfulness-based cognitive therapy was developed to treat individuals through practices such as meditation and breathing techniques. Lastly, the eye movement desensitization and reprocessing approach is designed to lessen symptoms of distress by triggering experiences while the therapist guides the client with rhythmic eye movements to lessen the intensity of traumatic memories/events. For depression and anxiety, treatment plans may consist of medication, psychotherapy, or a combination of both. In more severe cases electroconvulsive therapy (ECT) may be used to ease symptoms of depression. Antidepressants, anti-anxiety medications, and medications to improve sleep are used to treat anxiety and depression on a biological level. While talk therapies such as CBT, acceptance and commitment therapy, and interpersonal therapy are used to reinforce symptom relief. Treatment for substance use disorders utilize medications to ease withdrawal symptoms from drugs and alcohol. Medications can be used to decrease cravings. To add to this, psychotherapies such as motivational enhancement therapy and CBT are used to maintain recovery. Developed by Aaron Beck (1960), traditional cognitive behavioral therapy (CBT) holds the belief that maladaptive thoughts are a contributing factor to emotional distress and behavioral issues (Hofman et.al, 2012). Using talk therapy in a structured way, therapists help clients become aware of misconceptions and as a result, are able to view difficult situations in a more effective way. Cognitive behavioral approaches focus on the “here-and-now” rather than events that have occurred in the far past. Using introspection, individuals are encouraged to confront irrational thoughts so that they are no longer considered a

disturbance. Similar to EAP, cognitive-behavioral therapies vary in definition because of the diversity in techniques. However, the main goal is to achieve changes by altering the way individuals think thus altering their behavior (Kalodner, 2011). CBT is commonly prescribed to treat disorders such as depression, PTSD, and eating disorders with respect to the general population and veteran population. For veterans who need additional help with respect to overcoming addiction, opioid treatment programs and residential treatment programs are offered that ensure patients are closely monitored. When working with veterans who are diagnosed with schizophrenia, practitioners often turn to medication management consisting of mood stabilizers, as well as medications to reduce hallucinations and organize thoughts.

Banner (2016) described experiential reports of EAP among veterans with PTSD in a published dissertation. This study involved a qualitative phenomenological study that utilized in-depth, semi-structured interviews consisting of open-ended questions, conducted with seven veterans from across the United States diagnosed with PTSD and who had taken part in EAP. Banner (2016) described key themes that emerged from interviews and determined from the thematic analyses that while most of the participants reported that EAP was helpful in reducing PTSD symptomology, this was not always the case. Participants reported benefits from EAP in terms of decreased PTSD symptoms. Different reasons for these benefits were cited, including 1) the establishment of strong therapeutic bonds with the horse and EAP therapist, 2) the development of a sense of meaning and purpose, 3) the establishment of cognitive and emotional freedom from the confinement created by symptoms, 4) the sense of accomplishment on a therapeutic “journey” marked by the successive accomplishment of various objectives, and 5) the recognition that the EAP participant has the capacity to overcome adversities, including PTSD. One of the seven participants reported rejecting EAP in the belief that it was not yielding benefits

for them. Another participant stated that their PTSD symptoms had decreased in severity, but that this decrease was associated less with permanent therapeutic improvements and more with temporary retreat from reminders or triggers for their symptoms. Banner's (2016) research suggest that PTSD symptoms may be reduced in at least some veterans who are EAP participants, and that these benefits may be achieved in various ways.

Craven (2013) described, in another dissertation, a pilot study of EAP effectiveness among five American military veterans. Craven's (2013) research, unlike that of Banner (2016) or Kinney et al. (2019), focused on a single EAP therapeutic strategy. Although Craven (2013) described a study with a small sample size, similar to the dissertation by Banner (2016), Craven's study employed a quantitative methodology that was more rigorous than Banner's, as all of the participants in Craven's study completed multiple, identical measures. In Craven's (2013) study, participants were assessed for PTSD symptoms according to the PTSD Checklist at baseline, post-intervention, and follow-up; diagnostic criteria for PTSD according to the Diagnostic and Statistical Manual – Fourth Edition (DSM-IV) at baseline, post-intervention, and follow-up; positive and negative affect components according to the Positive and Negative Affect Scale before and after each EAP session; and social functioning according to the Patient-Reported Outcomes Measurement Information System scale for social health measures at baseline, post-intervention, and follow-up. Statistically significant ($p < 0.05$) decreases in PTSD symptoms were found in just two participants, but three participants went from meeting DSM-IV PTSD criteria at baseline to no longer meeting them at follow-up. Positive affect increased significantly in all participants at all EAP session time points, and negative affect declined in four participants for all EAP session time points. Social functioning increased significantly between baseline and post-intervention for just two of the participants (Craven, 2013). Despite the small sample size,

the results of Craven's (2013) study indicate some PTSD symptomology and affect benefits from EAP, although there seemed to be fewer social and interpersonal functioning benefits associated with EAP in the study.

With respect to analyzing attrition rates among veterans seeking treatment, Kinney et al. (2019) conducted a systematic review of EAP interventions that had been delivered to veterans with PTSD. The six quantitative studies included in the review utilized different EAP therapeutic strategies, like the participants sampled in the study by Banner (2016). Also, Kinney et al. (2019) described the studies as generally focusing on the psychosocial outcomes of EAP and using diverse outcome measures to evaluate the impact of EAP, unlike the research by Craven (2013) that examined outcomes in a variety of domains related to PTSD. Studies described in Kinney et al. (2019) were unique among the other studies considered in this review in that participant attrition was a factor, but Kinney et al. noted that the studies did not usually account for why attrition had occurred. Another unique aspect to the studies reviewed in the article by Kinney et al. (2019) was the absence of theoretical focus on why EAP might be capable of achieving desirable therapeutic outcomes in PTSD treatment; the other studies considered in the present literature review had offered theoretical explanations in this regard. Kinney et al. (2019) determined that the studies they reviewed showed significant benefits in psychosocial improvement in veterans, which aligns with the quantitative findings reported in Craven (2013).

Cross-cultural implications suggest this modality extends not only to the United States military force but also shows positive cross-cultural success with veterans overseas. In a study conducted by Romaniuk, Evans & Kidd (2018), researchers evaluated the outcomes that an equine assisted psychotherapy program had on treating veterans of the Australian military and their partners among domains such as depression, anxiety, stress, posttraumatic stress, happiness,

and quality of life. Using a pre-test, post-test design, between-subject analysis was used to compare outcomes of individual and couples' programs. Using independent samples *t*-tests, participants in both the individual and couples' programs showed significantly fewer symptoms in conjunction with higher levels of happiness and quality of life. What is further noted is, reported scores in only the couples program revealed significantly less symptoms of depression and post-traumatic stress disorder. Studies similar to Romaniuk, Evans & Kidd (2018) are important to consider when looking at the future of research, that is, it strengthens EAP's reliability among cultures by providing data that supports using EAP among this population. Studies such as this can provide an alternative perspective when searching for variables that strengthen outcomes of therapy.

In a published dissertation, LaFleur (2015) described a qualitative study on American veterans with PTSD who had taken part in a single EAP program. The study by LaFleur (2015) was phenomenological in its design and involved semi structured interviews with nine participants. Unlike the research described by Banner (2016), the study in LaFleur (2015) included not only veterans with PTSD in its sample, but also volunteers and equine instructors working in the EAP program. However, the interview questions and the use of thematic analysis in the study that LaFleur (2015) described were similar to the methodology employed in the study that Banner (2016) conducted. The veterans who were included in the sample by LaFleur (2015) uniformly described benefits in PTSD symptom reduction through participation in EAP, whereas the results in Banner (2016) and Craven (2013) indicated that some of the participants in their samples did not respond to EAP. The themes that LaFleur (2015) identified in the interviews with all participants suggested that the benefits of EAP clustered around four themes, some of which are aligned with the themes that Banner (2016) identified. The themes that

LaFleur (2015) found to be conducive to effective results in EAP delivered to veterans with PTSD included the availability of community support for veterans involved with EAP, the relationship between veterans and the EAP instructors and therapists, the ability of veterans to acquire skills transferable to PTSD symptom management through EAP, and the motivation of veterans to participate in EAP programs. Similarly, Mayfield (2016), in a dissertation, described a study involving three veterans with PTSD who had taken part in EAP. The study that Mayfield (2016) described focused on a single EAP program and involved semi structured interviews as well as observations; unlike the studies in Banner (2016) and LaFleur (2015), Mayfield's study was intended to be exploratory rather than explanatory. However, Mayfield also employed thematic analysis similar to the other qualitative research described in this review. Mayfield (2016) documented benefits of EAP among the veterans that were connected to here-and-now and relational connection experiences. Interview analyses revealed themes that overlapped with the findings of LaFleur (2015) and Banner (2016), and included relationship and support themes, as well as novel themes such as trust, communication, reciprocity, and concern. The studies considered in this review suggest EAP could be an effective therapy for psychological disorders among some veterans, although some individuals may not respond to EAP as well as others. The effectiveness of EAP in treatment, according to the studies reviewed here, may be complex and based on multiple social and individual factors.

Chapter 3

Methodology

Purpose of the Study

Rationale for using a meta-analysis approach was to gather a comprehensive collection of data that can produce a quantitative estimate of what is occurring in research with respect to equine assisted psychotherapy. By combining the results of independent studies and synthesizing summaries and conclusions, the meta-analysis approach accomplishes two major components: 1) it produces a pooled estimate for the treatment effect and 2) it tests for heterogeneity of effect between studies (Finckh & Tramer, 2008). Methodological procedures for this analysis were based on meta-analytic guidelines outlined by Nimer & Lundahl (2007) with considerations in order to fit the parameters of this study.

Strengths and Weaknesses of Meta-analytic Approach

Strengths of the meta-analysis approach include providing contributions to research through digestion and assimilation of a high number of publications, which in turn can be used to enhance the precision of treatment. To add to this, conducting a meta-analysis increases the statistical power of reported outcomes while also providing exploratory analyses of subgroups that may respond significantly well to an intervention, or, subgroups that respond adversely. Using statistics, researchers are able to measure heterogeneity between studies to determine what proportion of the complete variation occurs beyond chance (Finckh & Tramer, 2008).

Reported weaknesses of the meta-analysis approach focus on its methodical sophistication. Meta-analyses are only as valid as the studies selected for review and can be susceptible to selection bias. When selected studies are low in quality or insufficient, conclusions are less likely to be reliable. Similarly, publication bias can lead to censorship of studies that do

not produce significant results, thus manipulating proposed outcomes. When the outcomes of results are biased, authors will tend to report the most favorable data while paying little attention to results that are not significant. To add to this, criteria for eligibility can be influenced in a way that can exclude studies with results that contradict the investigators views. Another concern of the meta-analytic approach centers around the idea that researchers are predicting the unknown future by using evidence explained by past events (Yu, 2015). As mentioned before, varying conditions across studies can be conflicting for results because not all studies use the same protocols and definitions. With that being said, concepts such as the super realization bias suggest researchers are able to create unrealistic conditions with small-scale studies, however, are unable to monitor or reproduce these same conditions for large-scale studies. With that being said, Slavin and Smith (2008) propose that small studies are not inherently biased, however, become biased when analyzed as a collection of experiments (Yu, 2015). All in all, meta-analyses are needed in this area of research to inform clinical decision making and policy, something EAP lacks (Mikolajewicz & Komarova, 2019).

Hypotheses

- H₁: Decreases in symptomology among veterans will be based on the type of traditional therapy being integrated with equine activities.
- H₀: There will be no difference in reported reduction of symptomology among veterans based on the type of traditional therapy being integrated into equine activities.
- H₂: Findings will suggest heterogeneity across studies.
- H₀: Findings will not suggest heterogeneity across studies.
- H₃: Effect size among studies will suggest a strong relationship between variables.
- H₀: Effect size among studies will suggest a weak relationship between variables.

Population

The population used for this study will consist of male and female military veterans. The veteran population encompasses retired personnel from all five branches of military, including The Army, Air Force, Navy, Marine Corps, and Coast Guard. According to the Veterans Affairs, in 2015 there were a reported 9,281,379 Army, 4,459,108 Navy, 3,628,444 Air Force, 2,262,428 Marine, 930,116 Reserve, 222,080 Non-defense veterans still living in the United States. Of these reported veterans, 18,947,705 are males, while 1,835,849 are female. 17,098,588 identified as White, 2,484,861 Black, 146,596 American Indian and Alaska Native, 324,304 Asian, 39,379 Native Hawaiian, 283,154 races not listed, 406,674 two or more races, 1,469,868 Hispanic or Latino (VeteransAffairs.gov). The representative sample for this study consisted of veterans who have been diagnosed with a mental health disorder. The occurrence in which the disorder was developed is not limited to combat related incidents, however, extends to serious accidents, physical or sexual assault, exposure to traumatic events (including remote exposure), serious health problems, torture, or war and conflict while serving in the United States military.

Study Selection

Study selection was conducted in two phases. The first phase consisted of a preliminary search using 8 databases to collect articles researching the effect equine assisted therapy has on lowering symptoms of psychological distress in veterans (e.g., ProQuest, Google Scholar, PubMed, APA PsychInfo, Medline, SCOPUS, Cochrane Library, EBSCO). Searches were completed using keywords related to the condition and intervention; including, “equine assisted psychotherapy”, “equine assisted counseling”, “equine assisted activity”, “equine assisted therapy”, “effectiveness”, “psychological disorders”, “horses”, “horse care”, “psychotherapy” and “veterans”. Using these key words 834 results populated from the search. After reviewing

the articles available, many of the studies included experiments examining EAP with children. With that being said, an advanced search was further conducted excluding articles including children populations. Using the new search parameters, roughly 90 results were populated. The second phase of the study search included reviewing material physically at the surrounding universities' libraries (e.g., Houston Baptist University, University of Houston, and Texas A&M). Of the articles collected, an examination of reference sections was conducted in order to retrieve additional studies. Titles and abstracts were reviewed to ensure qualifications were met. Parameters for criteria for inclusion consisted of (1) journals, dissertations, and thesis published through the summer 2020 (2) studies the veteran population (3) any mental health disorder (4) interventions can consist of any form of psychotherapy as long as treatment is integrated with horses/horse care (e.g., CBT, mindfulness, experiential therapy) (5) data on outcomes must be accessible. Of the studies abstracted, 21 met qualification for inclusion (see Table 1).

Table 1. Articles included

First Author	Year	Title	
Arnon	2020	Exploring therapists' conceptions of equine facilitated/assisted psychotherapy for combat veterans experiencing posttraumatic stress disorder	Dissertation
Banner	2016	An examination of the lived experiences of US military veterans who have been diagnosed with psychological inflictions of war who have utilized EAT	Dissertation
Boss	2019	A systematic review of equine-assisted interventions in military veterans diagnosed with ptsd.	Journal
Craven	2013	Effectiveness of equine assisted psychotherapy in the treatment of veterans with posttraumatic stress disorder	Dissertation
Earles	2015	Equine-assisted therapy for anxiety and posttraumatic stress symptoms	Journal
Earnst	2017	Effectiveness of an intensive five-day program using multiple treatment modalities for veterans with symptoms of post-traumatic stress disorder	Master's Thesis
Ferruolo	2015	Psychosocial equine program for veterans	Journal
Gehrke	2018	Measuring the psychophysiological changes in combat Veterans participating in an equine therapy program	Journal
Gomez	2016	Evaluating a program of equine therapy for veterans with PTSD symptoms	Dissertation
Johnson	2018	Effects of therapeutic horseback riding on post-traumatic stress disorder in military veterans	Journal
Kinney	2019	EA Interventions for veterans with service-related health conditions: A systematic mapping review	Journal

Krob	2015	Experiential learning: Experience as the source of learning and development	Dissertation
LaFleur	2015	Therapeutic horseback riding with military veterans: Perspectives of riders, instructors, and volunteers	Dissertation
Lanning	2013	Examining effects of equine-assisted activities to help combat veterans improve quality of life.	Journal
Niessen-Derry	2018	How equine-facilitated psychotherapy addresses military sexual trauma among female veterans: Systematic review	Master's Thesis
Romaniuk	2018	Evaluation of an equine-assisted therapy program for veterans who identify as 'wounded, injured or ill' and their partners	Journal
Sheade	2015	Effectiveness of relational equine-partnered counseling (REPC) on reduction of symptoms of PTSD in military veterans: A single case design	Dissertation
Skidmore	2018	The effects of Gestalt-Centered equine facilitated therapy on marital satisfaction in relationships in which one member is a combat veteran suffering with post-traumatic stress disorder	Dissertation
Voelpel	2018	Interaction between veterans and horses: Perceptions of benefits	Journal
Wharton	2019	Pilot testing a manualized equine-facilitated cognitive processing therapy (EF-CPT) intervention for PTSD in veterans	Journal

Coding Studies

Articles were coded for effect sizes and moderator variables. Moderator variables included characteristics such as, treatment group size, treatment type, control-group type (if any), and individual or group setting. Outcomes for moderator variables were then grouped together to form outcome classes. These outcome classes consisted of three categories including, psychological well-being, social well-being, and interpersonal improvements.

Dependent Variables

To test for heterogeneity, a random effects meta-regression was used to assess between study variation. Different components of the collected studies were analyzed in order to determine study variation by including information with respect to study level characteristics in order to determine overall heterogeneity (e.g., study-level location, sample size, length of follow-up, and study quality). As mentioned, three outcome groups were used to organize dependent variables across studies. Almost all studies applied EAP to veterans diagnosed with PTSD and symptoms associated with mental health and military trauma. Examples of cognitive outcomes

included increases in social skills/building relationships outside of the home, improved capacity for compassion/emotional regulation, and increased self-efficacy. Of the selected articles, all of the studies incorporated equine companions into therapy in order to assess improvements for *psychological well-being outcomes* and reduction of symptoms. Particularly, Earles et al. (2015) measured the effects EAP had on lowering reported symptomology in veterans by comparing pre-test and post-test results for disorders associated with veterans. To add to this, almost all studies evaluated *interpersonal well-being outcomes* including improvements in how individuals perceive them-selves and the environment around them. For example, Johnson et al. (2018) measured improvements in increase in positive feelings, awareness of feelings, improvements in feelings of loneliness, and greater sense of mastery. Lastly, most studies collected provided information in regard to *social well-being outcomes*, that is, how veterans felt with respect of engaging in social activities and reintegration into society. For instance, Gomez (2016), examined how EAP effects elements such as social isolation, greater engagement, and improvements in communication among veterans who participated in the study.

Independent Variables

Nine independent variables were coded, all were derived from the therapy intervention used in conjunction with EAP (e.g., experiential therapy, mindfulness, community resilience model, Gestalt-based therapy, etc.). As mentioned, presenting problems among veterans were separated into 3 broad categories including *interpersonal well-being*, *psychological well-being*, and *social well-being*. For each article reviewed, EAP complemented a traditional model or was viewed as experimental nontraditional intervention. Examples of problems coded for *psychological well-being* included veterans seeking treatment using a specific form of EAP (such as EAP incorporated with mindfulness or experiential, to reduce symptoms of PTSD, GAD,

depression, anxiety, and trauma related disorders, where horses were designed to reduce symptomology. Examples of problems coded with respect to the *interpersonal well-being* focused on veterans who experienced an increase in perceptual awareness of one's self by using EAP treatment to improve self-esteem, self-awareness, trust, increased coping skills, and better knowledge of one's self. Lastly, difficulties or improvements in areas of *social wellbeing* were coded based on veterans experienced positive changes in relationships, less isolation, more peer support, and greater engagement, by participating in EAP. Additional characteristics were coded, including specific information about the form of EAP used in treatment (e.g., was the participant riding the horse or participating in groundwork). To add to this, studies were broken down into whether they had a control group or no comparison group. Additionally, rigor of each study was calculated based on Nimer and Lundahl's (2007) 9-point scale. As described:

Each study received one point for including each of the following: a control group, randomization, blind coders of observational data, a treatment manual, at least three descriptions of the sample (e.g., participant age, gender, socio-economic status), well-known measures of dependent variables, clear description of the intervention, delivery location, and provision of sufficient information to directly calculate an effect size from means and standard deviations rather than from other indicators (i.e., t-test, p value) (Nimer & Lundahl, 2007, p.228).

Chapter 4

Results

Cohen's d was used to measure effect size. This approach measures effect size by calculating the standardized difference between two means divided by the pooled standard deviation. Cohen's d was used to determine the overall effect size by finding the standardized difference. Using this calculation allows a set of metrics that do not have equal meaning to be summarized (Vesterinen et al., 2014). In regard to psychological research, the effect size is considered small when $d = 0.2$, medium $d = 0.5$, and large $d = 0.8$ (McLeod, 2019). Similar to Nimer and Lundahl's (2007) study on animal assisted therapy, equine assisted therapy is a rather new form of treatment, thus there is not much literature that exist. With that being said, if a study did not have a control group, "... d reflects the difference between the pre-treatment and post-treatment scores divided by a pooled standard deviation" (Nimer & Lundahl, 2007, p. 228). There were eight studies that used a qualitative approach for collecting data. With that being said, effect sizes could not be measure or included in that portion of the study. Instead, studies that did not have quantifiable data were qualitatively synthesized. From the data collected, studies were broken down into the three overall categories measuring effect sizes. That is, social outcomes, psychological outcomes, and interpersonal outcomes.

Heterogeneity

With respect to heterogeneity or variation among studies, characteristics including treatment type (individual, group, or mixed), type of EAP used (EAGALA, PATH, etc.), traditional therapy integrated into EAP (Gestalt, experiential, etc.), sample size, and rigor, were coded to determine trends in the structure. Heterogeneity evaluates the variability in methodological diversity among studies.

Therapy setting

Whether EAP took place in an individual, group, or mixed setting was analyzed. When looking at moderator variables, eleven (55%) studies analyzed used or analyzed EAP in a group setting, while three (15%) studies utilized EAP in an individual setting, and six (30%) used EAP in a mixture of individual and group settings.

Table 2. Treatment Setting

Treatment name	Number of studies <i>N</i> =
Individual	3
Group	11
Mixed	6

Sample Size/Control Group

Sample sizes across studies were relatively small, with a mean of 16 veterans participating in EAP experiments. Additionally, only three (15%) of twenty studies included some sort of control group (see Table 3). While the remaining seventeen (85%) studies did not report use no control group.

Table 3. Study size and control groups

First Author	<i>N</i> =	Tx (<i>N</i> =)	WL (<i>N</i> =)
Arnon	8	8	-
Banner	6	6	-
Boss	9	9	-
Craven	5	5	-
Earles	16	16	-
Earnst	9	9	-
Ferruolo	8	Did not specify	Did not specify
Gehrke	17	17	-
Gomez	7	7	-
Johnson	43	29	14
Kinney	8	8	-
Krob	12	12	-
LaFleur	9	9	-
Lanning	13	13	-

Niessen-Derry	28	28	-
Romaniuk	47	25	22
Sheade	6	6	-
Skidmore	4	4	-
Voelpel	40	40	-
Wharton	27	27	-

TX – Participants who received treatment, WL – Waitlist/control group

Type of EAP used among studies

For the type of EAP used among studies, one (5%) study used “equine facilitated therapy” (e.g., Niessen-Derry 2015). three (15%) studies used “EAGALA” (Arnon 2020, Craven 2013, Ernst 2017), “equine partnered counseling” ,“therapeutic horseback riding”, “equine assisted learning”, “equine assisted activities”, “Heart of Horsemanship” “equine assisted activities, and “equine partnering naturally” were each individually used as an intervention in one (5%) study each. Five (25%) studies used “PATH” (Gomez 2016, Jonhson et al. 2018, Lafleur 2015, Lanning & Kernek 2013, and Skidmore 2018). While “equine assisted therapy” was used in two (10%) different studies, “equine interventions” was referenced in three (15%) studies (See Table 4).

Table 4. Type of EAP used throughout studies

Treatment name	Number of studies N =
Equine Facilitated Therapy	1
EAGALA	3
Equine Assisted Therapy	2
Equine Partnered Counseling	1
Therapeutic horseback riding	1
Equine Assisted Learning	1
Equine Assisted Activities	1
Equine Partnering Naturally	1
PATH	5
Heart of Horsemanship	1
Equine Assisted Intervention	3

Traditional therapy integrated into EAP

Regarding the type of traditional therapy integrated into EAP practice, eight (40%) used experiential therapy, three (15%) used mindfulness, two (10%) used Gestalt based therapy, one (5%) used cognitive processing therapy, one (5%) used the phenomenological approach, one (5%) used a heuristic approach, one (5%) used relational therapy, and one (5%) used the social cognitive theory. Two (10%) studies were systematic reviews that included all types of traditional forms of therapy into their review (See Table 5.).

Table 5. Traditional forms of therapy

Treatment name	Number of studies N =
Experiential therapy	8
Mindfulness	3
Gestalt-based therapy	2
Cognitive processing therapy	1
Phenomenological approach	1
Heuristic approach	1
Relational therapy	1
Social cognitive theory	1
Review all treatment types	2

Rigor

Rigor for each study was based on Nimer and Lundahl’s (2007) 9-point scale. Studies containing a control group scored highest (score of 8) when compared to studies with no-control (score ranged from 7-3). Three (15%) of 20 studies scored below five and the remaining seventeen studies scored above a five. Most points were lost due to studies not having a control group or randomization. All in all, rigor among studies were of decent quality (see Table 6.).

Table 6. Rigor

First Author	Rigor
Arnon	6
Banner	5
Boss	4
Craven	7

Earles	5
Earnst	6
Ferruolo	8
Gehrke	6
Gomez	7
Johnson	8
Kinney	5
Krob	3
LaFleur	5
Lanning	5
Niessen-Derry	4
Romaniuk	8
Sheade	7
Skidmore	6
Voelpel	4
Wharton	5

Rigor point scale	One point for including each of the following: a control group, randomization, blind coders of observational data, a treatment manual, at least three descriptions of the sample (e.g., participant age, gender, socio-economic status), well-known measures of dependent variables, clear description of the intervention, delivery location, and provision of sufficient information to directly calculate an effect size from means and standard deviations rather than from other indicators (i.e., t-test, p value)
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Social outcomes

With respect to social outcomes, emerging themes from Banner (2016) suggest EAP produces increases in the importance of having support systems and rebuilding life. To add to this, Craven (2013) found overall improvement’s in social health and Kinney (2019) reported increased social functioning and community engagement. Furthermore, Krob (2015) reported greater desire to “reconnect” and belonging, while Lafluer (2015) pointed out improvements in community support, relationship building, and community support. Lanning and Krenek (2013) found trends in increased sociability, and Voelpel (2018) suggested increases in awareness of others from participating in EAP with one veteran reporting “I am much more respectful and

cautious of others' personal space.... This experience has helped me to become more sensitive and listen in other ways than just...verbal communication.” (Voelpel, 2018, p.9).

Psychological outcomes

Concerning psychological outcomes among qualitative studies, there were reported decreases in PTSD symptoms in Banner (2019), Craven (2013), and Kinney's (2019) study. In Banner (2019), veterans reported “I noticed a change in myself . . . because the horses are so soothing to me and it calms me down. I guess with my anxiety and just, I don't know, [my] social dysfunction, [and] I guess now, since I have the PTSD and anxiety issues—being around the horses just really calms me down” (Banner, 2019, p.67). Kinney (2019) and Lanning and Krenk (2013) reported themes regarding improvements in positive changes in qualitative of life indicators and lower depressive symptoms. Although depression scores decreased over time, the mean score was small and did not reflect a significant change. While Niessen-Derry (2015) discovered reported decreases in symptoms of avoidance, and hyper arousal. Lastly, Voelpel (2018) reported benefits as a stress reliever for veterans attending a nursing program. Participants from this study reported anecdotal information, elaborating how “Equine therapy was an amazing opportunity that gave us a chance to relax and step back from the stress of nursing school. It provided an excellent therapeutic environment and was perfect for our Veterans program” (Voelpel, 2018, p.9)

Interpersonal outcomes

Interpersonal outcomes for qualitative studies included increase in purpose, sense of self, and self-reflection which was reported in Krob (2015). Banner (2016) reported improvements in deciding to live life to the fullest, while Craven (2013) suggested increases in interpersonal roles. Kinney (2019) reported positive self-appraisal among participant, and Krob's (2015) data

suggest increases in confidence and self-esteem. Outcomes from Lafluer (2015) suggested increases in self-esteem and confidence, with Lanning (2013) reporting improvements in sociability and Nissen-Derry (2015) reporting positive outcomes with respect to mind-body reintegration. Improvements in self-awareness was reported by Voelpel (2018) reporting responses including “The equine therapy has opened up a new level of awareness with myself and people I come in contact with.... I learn something new about how my thoughts and expectations are linked to the outcome of a situation.” (Voelpel, 2018, p.9) Lastly, Ferruolo (2015) found themes centered around learning about Self, spiritual connection, trust, and respect.

Effect Sizes

In this study, there were five experiments which allowed for effect size to be measured. With respect to *psychological outcomes*, effect size across studies were mostly large (4 of 5, effect size: $d = 1.81, d = .779, d = 1.73, d = .88$), indicating a strong relationship between EAP and lowering psychological symptoms. Effect sizes for *social outcomes* suggest EAP may not be as impactful in this area as it is in others. Overall, small effect sizes for social outcomes were reported in 4 of 4 studies ($d = .012, d = 1.02, d = .430, d = -0.92$). Effect size for *interpersonal outcomes* suggests mix implications, that is, two studies produced large effect sizes ($d = .720$ and $d = .754$). To add to this, two studies produced small effect sizes ($d = .248$ and $d = -0.91$), and one produced a medium effect size ($d = 0.59$).

Table 7. Effect Sizes

First Author	Psychological outcomes Cohen’s <i>d</i>	Social Outcomes Cohen’s <i>d</i>	Interpersonal outcomes Cohen’s <i>d</i>
Arnon (2020)	1.81	-	.720
Earles (2015)	.779	.012	.754
Earnst (2017)	1.73	1.02	0.59
Gomez (2016)	.043	.430	.248
Romaniuk (2018)	.88	-0.92	-0.91

Key for Table 7

Psychological outcomes	Effect size of measured psychological symptoms across studies (e.g., PTSD, anxiety, depression, substance use, etc.)
Social outcomes	Effect size of social wellbeing outcomes (e.g., reintegration, positive changes in relationships, less isolation, more peer support, and greater engagement in social activities)
Interpersonal outcomes	Effect size of interpersonal improvements (e.g., increase perceptual awareness of one's self, improve self-esteem, trust, increased coping skills, and better knowledge of one's self.

Chapter 5

Discussion/Conclusion

From the data collected, it is clear Equine Assisted Psychotherapy (EAP) has an impact on lowering symptoms of psychological distress. After reviewing findings from past research, a comprehensive overview of what is occurring with respect to EAP as an intervention was analyzed in order to provide guidance for future studies. After examining the selection of articles, all of which have to do with veteran psychology and equine-assisted psychotherapy, data backs, the idea that equine-assisted psychotherapy and many of its associated properties can be effective. While this stage in literature is still somewhat sparse, at this point it seems conclusive that some form or different forms of equine-assisted psychotherapy may have a place as a treatment method for veterans. At this point, it is difficult to tell whether it works better as an alternative treatment method for a more specific segment of the population or if its effectiveness reflects a higher volume of usage.

With that said, nearly all studies collected lacked a control group leaving many questions with respect to how EAP compares to a control group or even to other therapies. Of the studies that did include a control, the control group was considered a waitlisted group that eventually received treatment (Ferruolo, 2015, Johnson et al, 2018, and Romaniuk, 2018). Studies that met criteria for inclusion for this study were published from 2013 to 2020. This could be problematic because EAP was first standardized in 1999 by EAGALA. Although this is true, it must be noted that EAP for veterans is a newer focus of research compared to EAP studies on children. Quantitative data collected in this study produced effect sizes that did not give clear indication of overall effectiveness. It should also be noted that in this study only five of 20 articles contained data that allowed for the calculation of effect size. When compared to the results of a meta-

analysis conducted on cognitive behavioral therapy, effect size from Cuijpers et al (2013) suggested similar results. In fact, results from Cuijpers et al (2013) implied overestimation of the true effect size suggesting its efficacy may not be as high as once believed. With that being said, the effect sizes of this study may not be the best representation of equine therapy as a whole. Although this may be true, it cannot be ignored that the qualitative data collected suggest promising results for veterans exposed to EAP. Furthermore, sample size was most often small with an average of 16 veterans participating in the studies. Similar difficulties that arose in this study also occurred in Kahn et al (2018) who conducted a meta-analysis on eye movement desensitization reprocessing. For this study, 14 out of 714 studies met criteria for inclusion. Mixed results were implied with respect to the effectiveness of EMDR (significant results for lowering symptoms of anxiety, nonsignificant results for depression), when compared to other modalities such as CBT, effect size suggested no statistical significance (Kahn, 2018). With all considering, looking at effect size among a small batch of studies may not be the most reliable way to determine the effectiveness of equine assisted psychotherapy at this time.

When compared to other treatments, equine assisted psychotherapy's cost effectiveness varies among programs and personal insurance. Some EAP programs are offered to veterans free of cost, like Heart of Horse Sense, while others have reportedly charged \$115 to \$300 a session such as the National Center for Equine Facilitated Therapy. On the other hand, programs like The J.F. Shea Therapeutic riding Center offer reduced cost and financial aid to veterans interested in their program. Similar to what was stated above, while some insurances cover EAP, others do not. It can be concluded EAP can be quite costly depending on the program and if discounts are offered to veterans. Compared to traditional therapy, cost of treatment for veterans is typically covered fully under insurance or at most with a copay. With that being said, EAP

may not be the most cost-effective form of treatment in addition to the fact that most EAP facilities are far away.

In any case, horses have a potentially valuable role in therapy and has already been of service to many veterans. Existing literature leaves many questions that still need to be answered. For example, would EAP services be more beneficial offered as a weekend retreat versus having veterans come to sessions multiple times a week? Would this help providers retain veterans considering they would not have to drive to a far location, multiple times? Although most research into equine-assisted psychotherapy and the other sources discussed have to do with veterans and PTSD, these sources have potential when dealing with multiple diagnoses. Veterans who have experienced acute trauma or even substance addiction could possibly benefit from the methods explored here. For example, individuals battling substance addiction often suffer from lethargic behaviors, and the relative athleticism associated with equestrianism might give them the opportunity to stay active. Ways in which EAP can help with physical symptoms are supported by interventions, such as hippotherapy, which is used as a physical therapy modality. As discussed, documentation on these methods as they relate to veterans is somewhat limited. Because of low enrollment, opening studies to the broader population could allow for them to become better developed and understood in a more rapid manner. So, for reasons of both advancing the research and potentially applying advances to more people, it may be beneficial for medical researchers to explore those avenues in greater detail.

References

- Abrams, B. N. (2013). *Exploring therapists' conceptions of equine facilitated/assisted psychotherapy for combat veterans experiencing posttraumatic stress disorder* [Doctoral dissertation, Northcentral University]. ProQuest Dissertations Publishing, 2013. 3569187.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: Author.
- Arnon, S., Fisher, P. W., Pickover, A., Lowell, A., Turner, J. B., Hilburn, A., . . . Neria, Y. (2020). Equine-assisted therapy for veterans with PTSD: Manual development and preliminary findings. *Military Medicine*, 185(5-6). doi:10.1093/milmed/usz444
- Banner, T. F. (2016) *An examination of the lived experiences of US military veterans who have been diagnosed with psychological inflictions of war who have utilized EAT*. [Doctoral dissertation, Louisiana State University].
https://digitalcommons.lsu.edu/gradschool_dissertations/1186
- Beck, A. T. (1991). Cognitive therapy: A 30-year retrospective. *American Psychologist*, 46(4), 368-375. doi:10.1037/0003-066x.46.4.368
- Bivens, A., Leinart, D., Klontz, B., & Klontz, T. (2007). The effectiveness of equine-assisted experiential therapy: Results of an open clinical trial. *Society & Animals*, 15(3), 257-267.
- Boss, L., Branson, S., Hagan, H., & Krause-Parello, C. (2019). A systematic review of equine-assisted interventions in military veterans diagnosed with PTSD. *Journal of Veterans Studies*, 5(1), 23–33. DOI: <http://doi.org/10.21061/jvs.v5i1.134>
- Craven, M. B. (2013). *Effectiveness of equine assisted psychotherapy in the treatment of veterans with posttraumatic stress disorder*. [Doctoral dissertation, Texas A & M University]
<http://hdl.handle.net/1969.1/151886>.

- Cuijpers, P., Berking, M., Andersson, G., Quigley, L., Kleiboer, A., & Dobson, K. S. (2013). A Meta-Analysis of Cognitive-Behavioural Therapy for Adult Depression, Alone and in Comparison with other Treatments. *The Canadian Journal of Psychiatry, 58*(7), 376–385. <https://doi.org/10.1177/070674371305800702>
- Earles, J. L., Vernon, L. L., & Yetz, J. P. (2015). Equine-assisted therapy for anxiety and posttraumatic stress symptoms. *Journal of Traumatic Stress, 28*(2), 149-152.
- Earnst, S. L. (2017). *Effectiveness of an intensive five-day program using multiple treatment modalities for veterans with symptoms of post-traumatic stress disorder* [Master's thesis, Northwest Nazarene University]
- Ferruolo, D.M. (2016). Psychosocial equine program for veterans, *Social Work, Volume 61, Issue 1, January 2016, Pages 53–60,*
- Finckh, A., Tramèr, M. Primer (2008). Strengths and weaknesses of meta-analysis. *Nat Rev Rheumatol 4*, 146–152 (2008). <https://doi.org/10.1038/ncprheum0732>
- Fitzpatrick, J. C. (1997). Hippotherapy and therapeutic riding. *Companion Animals in Human Health, 41.*
- Gadermann, A. M., Engel, C. C. C., Naifeh, J. A., Nock, M. K., Petukhova, M., Santiago, L. P. N., ... & Kessler, R. C. (2012). Prevalence of DSM-IV major depression among US military personnel: Meta-analysis and simulation. *Military medicine, 177*(8 0), 47.
- Gehrke, E. K., Noquez, A. E., Ranke, P. L., & Myers, M. P. (2018). Measuring the psychophysiological changes in combat Veterans participating in an equine therapy program. *Journal of Military, Veteran and Family Health, 4*(1), 60-69.

- Gomez, I. B. (2016). *Evaluating a program of equine therapy for veterans with PTSD symptoms* [Doctoral dissertation, Alliant International University] ProQuest Dissertations Publishing, 2016. 10119467.
- Harbeson, L.R.M. (2018). Psychotherapists perceptions & use of projection in EAI: A phenomenological study. [Doctoral dissertstion, Northcentral University]
- Hofmann, S. G., Asnaani, A., Vonk, I. J., Sawyer, A. T., & Fang, A. (2012). The efficacy of cognitive behavioral therapy: A review of meta-analyses. *Cognitive Therapy and Research*, 36(5), 427-440.
- Hough, S. L., & Hall, B. W. (1994). Comparison of the Glass and Hunter-Schmidt meta-analytic techniques. *The Journal of Educational Research*, 87(5), 292-296.
- Johnson, R. A., Albright, D. L., Marzolf, J. R., Bibbo, J. L., Yaglom, H. D., Crowder, S. M., ... & Osterlind, S. (2018). Effects of therapeutic horseback riding on post-traumatic stress disorder in military veterans. *Military Medical Research*, 5(1), 3.
- Khan, Ali M et al. "Cognitive Behavioral Therapy versus Eye Movement Desensitization and Reprocessing in Patients with Post-traumatic Stress Disorder: Systematic Review and Meta-analysis of Randomized Clinical Trials." *Cureus* vol. 10,9 e3250. 4 Sep. 2018, doi:10.7759/cureus.3250
- Kalodner, C. R. (2011). Cognitive-behavioral theories. In D. Capuzzi & D. R. Gross (Eds.), *Counseling and psychotherapy* (p. 193–213). American Counseling Association.
- Kinney, A. R., Eakman, A. M., Lassell, R., & Wood, W. (2019) EA Interventions for veterans with service-related health conditions: A systematic mapping review. *Military Medical Research* 6(28).
- Kolb, A. D. (1984). *Experiential learning: Experience as the source of learning and*

development. Prentice Hall.

<http://www.learningfromexperience.com/images/uploads/process-of-experiential-learning.pdf>

Krob, K. E. (2015) *Heroes and horses: Veteran and equine experiences with EF learning and therapy*. [Doctoral dissertation, U N. Colorado]

<http://digscholarship.unco.edu/dissertations>

LaFleur, L. (2015). *Therapeutic horseback riding with military veterans: Perspectives of riders, instructors, and volunteers*. [Doctoral dissertation, Antioch Univ Seattle].

<https://etd.ohiolink.edu/>

Lanning, Beth A, PhD., M.C.H.E.S., & Krenek, Nancy, P.T., H.P.C.S. (2013). Examining effects of equine-assisted activities to help combat veterans improve quality of life. *Journal of Rehabilitation Research and Development*, 50(8), vii-xiii. Retrieved from

<http://libproxy.hbu.edu/login?url=https://search-proquest-com.libproxy.hbu.edu/docview/1492922139?accountid=7035>

Lee, P. T., & Makela, C. (2015). Horses' roles in equine-assisted psychotherapy: Perspectives of mental health practitioners. *Journal of Psychology and Behavioral Science*, 3(1), 78-95.

Lessick, M., Shinaver, R., Post, K. M., Rivera, J. E., & Lemon, B. (2004). Therapeutic horseback riding. *Association of Women's Health, Obstetric and Neonatal Nurses Lifelines*, 8(1), 46-53.

Lorber, W., & Garcia, H. A. (2010). Not supposed to feel this: Traditional masculinity in psychotherapy with male veterans returning from Afghanistan and Iraq. *Psychotherapy: Theory, Research, Practice, Training*, 47(3), 296.

- MacLean, B. (2011). Equine-assisted therapy. *Journal of Rehabilitation Research & Development, 48*(7), ix-ix.
- Maguen, S., Lucenko, B. A., Reger, M. A., Gahm, G. A., Litz, B. T., Seal, K. H., ... & Marmar, C. R. (2010). The impact of reported direct and indirect killing on mental health symptoms in Iraq war veterans. *Journal of Traumatic Stress, 23*(1), 86-90.
- Mayfield, M. A. (2016) *EFP for veteran survivors with full or partial PTSD* [Doctoral dissertation, Walden Univ-Counselor Education & Supervision PhD].
<https://scholarworks.waldenu.edu/dissertations>
- McLeod, S. A. (2019). What does effect size tell you. *Simply Psychology*.
- Mikolakewicz, N., & Komarova, S. V. (2019). Meta-Analytic methodology for basic research: A Practical guide. *Frontiers in Psychology, 10*, 203.
- Nakamura, K., Takimoto-Inose, A. & Hasegawa, T. (2018) Cross-modal perception of human emotion in domestic horses. *Equus caballus. Sci Rep 8*, 8660 (2018).
<https://doi.org/10.1038/s41598-018-26892-6>
- National Center for PTSD. (2018, July 24). Retrieved August 4, 2019, from
https://www.ptsd.va.gov/understand/common/common_veterans.asp
- Nepps, P., Stewart, C. N., & Bruckno, S. R. (2014). Animal-assisted activity: Effects of a complementary intervention program on psychological and physiological variables. *Journal of Evidence-Based Complementary & Alternative Medicine, 19*(3), 211-215.
- Niessen-Derry, C., (2015) How equine-facilitated psychotherapy addresses military sexual trauma among female veterans: Systematic review (2015). *Social Work Master's Clinical Research Papers, 495*. https://ir.stthomas.edu/ssw_mstrp/495

- Nimer, J., & Lundahl, B. (2007). Animal-assisted therapy: A meta-analysis. *Anthrozoös*, 20(3), 225-238.
- Notgrass, C. G., & Pettinelli, J. D. (2015). Equine assisted psychotherapy: The Equine Assisted Growth and Learning Association's model overview of equine-based modalities. *Journal of Experiential Education*, 38(2), 162-174.
- Pietrzak, R. H., Johnson, D. C., Goldstein, M. B., Malley, J. C., & Southwick, S. M. (2009). Perceived stigma and barriers to mental health care utilization among OEF-OIF veterans. *Psychiatric services*, 60(8), 1118-1122.
- Powalski, C. (2018) *EAP: A transformational path to emotional wellness for US military Veterans* [Doctoral dissertation, Brandman University]. 142.
https://digitalcommons.brandman.edu/edd_dissertations/142
- Pulverman, C. S., Christy, A. Y., & Kelly, U. A. (2019). Military sexual trauma and sexual health in women veterans: A systematic review. *Sexual Medicine Reviews*. 2019;7:393–407. <https://doi.org/10.1016/j.sxmr.2019.03.002>
- Rappaport, L., Trantham, S., Surrey, J., Chang, F., & Mullin, E. (2013). *Mindfulness and the arts therapies: Theory and practice*. Jessica Kingsley Publishers.
- Reive, C. A. (2019). *The effects of equine-assisted psychotherapy on mindfulness, self-reflection, insight, and psychological well-being in veterans* [Doctoral dissertation, Florida Atlantic University]. ProQuest Dissertations Publishing, 2019. 27549311.
- Romaniuk M, Evans J, Kidd C (2018) Evaluation of an equine-assisted therapy program for veterans who identify as 'wounded, injured or ill' and their partners. *PloS one*, 13(9): e0203943. <https://doi.org/10.1371/journal.pone.0203943>

Schmidt, F. L., & Hunter, J. E. (1999). Comparison of three meta-analysis methods revisited: An analysis of Johnson, Mullen, and Salas (1995). *Journal of Applied Psychology*, *84*(1), 144–148. <https://doi.org/10.1037/0021-9010.84.1.144>

Sheade, H. E. (2015). *Effectiveness of relational equine-partnered counseling (REPC) on reduction of symptoms of PTSD in military veterans: A single case design*. [Doctoral Dissertation, University of North Texas]. ProQuest Dissertations Publishing, 2015. 10034403.

Skidmore, J. T. (2018). *The effects of Gestalt-Centered equine facilitated therapy on marital satisfaction in relationships in which one member is a combat veteran suffering with post-traumatic stress disorder* [Doctoral dissertation, Texas A&M University-Commerce]. ProQuest Dissertations Publishing, 2018. 13421032.

Steele, E., Wood, D. S., Usadi, E. J., & Applegarth, M. (2018). TRR's Warrior Camp: An intensive treatment program for combat trauma in active military and veterans of all eras. *Military Medicine*, *183*(3/4) Pages 403–407, <https://doi.org/10.1093/milmed/usx153>

Tang, Y. Y., Hölzel, B. K., & Posner, M. I. (2015). The neuroscience of mindfulness meditation. *Nature Reviews Neuroscience*, *16*(4), 213-225. (2015). <https://doi.org/10.1038/nrn3916>

Trivedi, R. B., Post, E. P., Sun, H., Pomerantz, A., Saxon, A. J., Piette, J. D., Maynard, C., Arnow, B., Curtis, I., Fihn, S. D., & Nelson, K. (2015). Prevalence, comorbidity, and prognosis of mental health among US veterans. *American journal of public health*, *105*(12), 2564–2569. <https://doi.org/10.2105/AJPH.2015.302836>

VA.gov *Veterans Affairs*, www.va.gov/.

- Voelpel, P., Escallier, L., Fullerton, J., & Abitbol, L. (2018). Interaction between veterans and horses: Perceptions of benefits. *Journal of psychosocial nursing and mental health services*, 56(5), 7-10. <https://doi.org/10.1073/pnas.1111122109>
- Vujanovic, A. A., Niles, B., Pietrefesa, A., Schmertz, S. K., & Potter, C. M. (2013). Mindfulness in the treatment of posttraumatic stress disorder among military veterans. *Spirituality in Clinical Practice*, 1(S), 15–25. <https://doi.org/10.1037/2326-4500.1.S.15>
- Walsh, F. (2009). Human-animal bonds I: The relational significance of companion animals. *Family Process*, 48(4), 462-480. doi:[10.1111/j.1545-5300.2009.01296.x](https://doi.org/10.1111/j.1545-5300.2009.01296.x)
- What Is Posttraumatic Stress Disorder? (n.d.). Retrieved August 4, 2019, from <https://www.psychiatry.org/patients-families/ptsd/what-is-ptsd>
- Warmuth, V., Eriksson, A., Bower, M. A., Barker, G., Barrett, E., Hanks, B. K., ... & Soyonov, V. (2012). Reconstructing the origin and spread of horse domestication in the Eurasian steppe. *Proceedings of the National Academy of Sciences*, 109(21), 8202-8206. <https://doi.org/10.1073/pnas.1111122109>
- Wharton, T., Whitworth, J., Macauley, E., & Malone, M. (2019). Pilot testing a manualized equine-facilitated cognitive processing therapy (EF-CPT) intervention for PTSD in veterans. *Psychiatric Rehabilitation Journal*, 42(3), 268–276. <https://doi.org/10.1037/prj0000359>
- Yu, C. H., & Ds, P. (2015). Meta-analysis and effect size. *Small*, 500, 20.