

Mind Full or Mindful? A cohort student of Equine-Facilitated Therapy for Women Veterans

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Abstract

Background: The purpose of the evaluation was to understand, through participant self-report, the assets and challenges of partnering with equines for female Veterans seeking to increase skills in their mindfulness practice.

Methods: Surveys were administered to participants to gain insight into self-identified mindfulness pre- and post-equine intervention. All measures were anonymous with only the date included to indicate the cohort. The study included three measures post-consent: The Toronto Mindfulness Scale, the Mindfulness Scale, and the Program Evaluation.

Results: The Mindfulness Survey responses were averaged for pre- intervention, then for post- intervention. The pre-intervention survey responses ranged from 2.3 to 6.5 with a response range of 0 to 10 (M=4.59, SD=1.29). The post-intervention survey responses ranged from 6.7 to 9.2 (M=8.2, SD=0.69). A paired sample t-test found a significant difference in the scores from pre- intervention to post- intervention conditions ($t=-9.43$, $df=13$, $p<.001$). In the evaluations, participants shared that their favorite moments were (Q3): grooming and Breathe With (an activity to match breathing to the horse's breathing). In the question asking what the participants will take away from the program (Q9) one participant shared, "The horses have taught me a lot about myself"; a common theme across respondents.

Conclusion: The current study demonstrates that Veterans' interactions with equines impacts the participants' mindfulness throughout their experiences at Fieldstone Farm. The Veterans established a significant increase in their mindfulness scores post-equine intervention.

Background

Exposure to war stress can result in psychological and neurological trauma¹. The events of combat leave many veterans with varying degrees of Post-Traumatic Stress Disorder (PTSD), anxiety and depression, and an overall impaired quality of life². In addition to medical support for external trauma, the mental health fields have consistently dedicated training, education, and resources to providing treatment for returning veterans with both visible and invisible wounds³. Since the time of the Civil War, animals have served in a therapeutic capacity to foster recovery among military personnel. Horses, especially, have been linked with military efforts, as trusted steeds wartime and as companions in times of peace⁴. Lancia⁵ specifically notes that horses support military personnel adaptive and coping skills including emotional regulation.

Equine Facilitated Therapy (EFT) is one of a number of complementary treatment approaches used to address the effects of psychological trauma military personnel experience. EFT is a strategic therapeutic intervention provided or directed by a licensed mental health professional, and a trained equine specialist that deliberately include equines into a treatment plan to reach specific goals⁶. The inclusion of an animal is designed to accomplish outcomes that are believed to be difficult to achieve without the animal as collaborator⁷. Burgon⁸ theorizes that the horse, as a large prey animal, exemplifies the dichotomy between great power, grace and inherent vulnerability, which may serve as an effective tool in therapeutic work. In EFT, the horse is a collaborator in the therapeutic process between the clinician and client⁹.

EFT is an experientially-oriented activity that purposefully brings a horse into the clinical environment to strengthen aims and goals. Empirical evidence supports that horses may have direct positive biopsychosocial effect on the Veterans experiencing PTSD. Contrary to the notion posited by Schultz, Remick-Barlow and Robbins¹⁰, the intention of

EFT is not for horses to “elicit fear” (p. 266) as a stimulus for clients to overcome. Rather, horses are distinctly prey animals with limited resources for self-defense and preservation; their ability to read body cues and respond quickly may go unnoticed to an untrained eye^{8,11}. Thus, horses give the affect of mirroring human body language. Through the mechanisms of fight-freeze-flight¹¹ individuals are encouraged to overcome their internalized emotions and feelings to successfully partner with the horse. Biopsychosocial effects of the horse’s partnership include lower heartrate and respiration (bio-), increased mindfulness and self-esteem (psycho-), increased problem-solving skills, healthy boundaries, and empathy (social)^{10, 12, 13, 14}.

The demand for and popular interest in EFT has grown exponentially since the 1980’s⁴. The goals of EFT are similar to social work in that a client and mental health practitioner partner with the support of a horse collaborator to achieve goals that otherwise may be difficult to achieve. Practitioners of EFT suggest that horses can facilitate the development of responsibility, unconditional love, self-efficacy, required helpfulness, self-esteem, confidence, empathy, resilience, and emotional intelligence¹⁵.

The lead organization providing industry standards and certification of EATs is the Professional Association for Therapeutic Horsemanship International. As of 2017, 5,011 individuals held a PATH Intl certification in therapeutic horseback riding and unmounted equine assisted activities. Throughout the United States, 881 accredited centers employed 3,823 employees, and 62,469 volunteers to support 66,179 participants on/with 7,800 horses¹⁵. EAT is an emergent service sector that has the potential to engage individuals experiencing a wide range of biopsychosocial challenges

This mixed-method study uses a pre and post-test design to explore perceptions of mindfulness by female veterans who participated in a structured EFT curriculum. The study uses a clearly defined curriculum delivered by credentialed professionals at a premiere PATH Intl accredited center.

Literature Review

A literature review was conducted using a search strategy for equine facilitated therapy with veterans excluding studies that included other therapy or mindfulness modalities. The following electronic databases were used: SocIndex, PsycInfo, Medline, CINAHL, and Ebsco. The search terms were as follows: “equine assisted psychotherapy”; “equine facilitated psychotherapy”; “equine facilitated therapy”; “equine assisted therapy”; “veteran*”; “mindful*”. After review, five studies were included. Of the five studies, the countries represented included the United States and Australia. Three of the five papers contained empirical data. Of those three, two mentioned mindfulness in the intervention strategy. Mindfulness was included as an additional measure during EFT, not as an outcome measure. Of the empirical studies, Wharton, Whitworth, Macauley, & Malone¹⁶ included only male participants (N = 27), as did Ferruolo¹⁷ (N = 7); only Romaniuk, Evans, Kidd¹⁸ included women (N = 47), of which six completed the intervention.

INSERT FIGURE 1

Review of Studies

The Romaniuk et al.¹⁸ study found a noticeable decrease in depression, anxiety, stress, and PTSD and an increase in self-reported happiness and quality of life. Ferruolo¹⁷ reported several themes that contribute to the success of EFT: learning about self, spiritual connection, trust and respect.

Different intervention techniques were used in the studies. In one, a licensed clinical psychologist created an adaptation of Cognitive Processing Therapy (CPT) linked with Equine Therapy (ET); referred to as CPT-ET¹⁶. In another study cognitive-behavioral therapy (CBT), motivational interviewing (MI), mindfulness-based stress reduction (MBSR), and mindfulness-based cognitive therapy (MBCT) were implemented¹⁷. In the remaining studies, the participants engaged a variation of experiential equine activity, like leading a horse around an arena, and then debriefing and processing in a group or completing individual surveys. Overall, the results from the studies indicate evidence of a correlation between intervention and participant outcomes; however, none of the findings were statistically significant.

The small samples sizes as well as the inclusion of women in only one of the three empirical studies are limitations of the current literature. The interventions used in the studies differed, and limit replication of a standard intervention. Another limitation noted by these studies is the challenge of access. EFT is intended to be a mental health intervention, and yet health insurance does not cover the intervention, nor do Centers offering EFT accept insurance when available.

Services For Women Veterans

The Louis Stokes Cleveland VA Medical Center department for Women Veterans provides services to female Veterans or wives of Veterans seeking healthcare or treatment on their own behalf covered by the Civilian Health and Medical Program of the Department of Veterans Affairs (CHAMPVA). Women are eligible if they were honorably discharged or honorable under general conditions. The Northeast Ohio Healthcare System for Women VA's provide a range of services including Well-Being Programs, General health, Gynecology Health Services, Mental Health, and Specialty Care¹⁹.

The Louis Stokes Cleveland VA Medical Center department for Veteran's Affairs Rehabilitation Center brings between two and ten in-patient female participants to the Fieldstone Farm every-other week. Since participants are consistently transitioning into or out of the program, there are often new and returning women in the same cohort. Thus, the equine programming is relatively consistent week to week. Participants aim to work on processing their trauma, developing skills for re-integration, and increasing mental health and wellness.

To serve Veterans effectively, each session utilizes a team approach including the client, equine activity facilitator, and a licensed independent social worker. A certified therapeutic horsemanship instructor facilitates the equine activity. To ensure the safety of each participant, three trained volunteers support each cohort. During their time at Fieldstone, the focus is on mindfulness, communication, and developing self-confidence and self-esteem. This is accomplished through ground programming with the horses, completing team building exercises and horsemanship activities.

Therapy Program

Fieldstone Farm, in Chagrin Falls, Ohio, began 40 years ago with a focus on physical disabilities, but today more than half of the Center's clients experience emotional challenges, such as anxiety, depression, coping with the death of a loved one, a cancer diagnosis or PTSD, among others. As one of the largest and most respected therapeutic riding centers in the nation, it offers 38 highly trained horses, 250 weekly volunteers and 20 experienced PATH certified

instructors. The Farm's goal is to continue to serve approximately 1,300 students with special needs per year reach self-identified goals of independence, confidence, strength, happiness and education²⁰. The Farm's nationally certified instructors work with the teachers, families, therapists and doctors to customize programs specifically for their students keeping in mind their educational and life skills goals. The ultimate goal at Fieldstone Farm is to ensure that every participant leaves the farm after each session progressing toward their goals.

In 2018, Fieldstone Farm served 1,267 individuals through equine assisted therapy. Based on the PATH International standards, this qualifies the Farm as a large therapeutic center. Within this client population approximately 640 were female and 800 were youth (under the age of 18). Of those served, 51% are engaged in EAT to address and support psychosocial disabilities; also referred to as mental health or social-emotional needs. Autism Spectrum Disorder (ASD) (15%) and developmental disabilities (15%) are second and third ranked identified needs, respectively. Though the EAT research literature has shifted to focus on ASD^{21,22}, the number of individuals experiencing psychosocial challenges has consistently been twice that of those with ASD. Fieldstone Farm is designed with careful attention to safety and accessibility for people with a range of abilities.

With the exception of the items listed in the budget (e.g., freezer for saliva samples), no animals or equipment is needed in excess of what is already provided through our partnership with Fieldstone Farm. All data collection will take place at the Farm facility.

Program Sessions

The primary purpose of the first session is to introduce the Veterans to Fieldstone Farm and to the horses. When the participants arrive at the facility, they enter one of the classrooms. They are provided a nametag and talked through the history of the organization and barn rules. Thereafter, the participants are given an opportunity to find a helmet that fits comfortably. Since a helmet is a potential trigger for Veterans, this is a slow and calm process. Once everyone has a helmet, they are given a tour of the facility. The facilitator of the equine activity takes time to observe which horses(s) stand out to the Veterans.

After the tour, the Veterans are brought into an area that looks into an enclosed indoor arena. Three horses are turned loose in the indoor arena and the Veterans have the opportunity to watch the horses interact for approximately 20-minutes. The purpose of the observation is to decipher play from dominance, identify personalities, and observe the horses' nuanced movement. As the Veterans watch, the facilitator points out key aspects of the interactions: who lets whom play, who chases whom, what do the vocalizations mean, and more. After the horses have settled, the Veterans enter the arena to meet the horses for the first time.

Veterans choose which horse they want to meet without facilitator directive. The facilitator is responsible for safety; thus, they explain how to approach and greet the horse for the initial interaction. The Veterans learn how to groom with the various brushes and the facilitator also demonstrates how to simply use hands to provide tactile grooming. After grooming, the Veterans help return the horses to their stalls and proceed back to the classroom to debrief their first session.

In the second session, the primary goal is to meet and interact with horses while learning grounding techniques. During this session, the Veterans groom the horses in the grooming bays; an area where the horse is tethered by cross-ties to the stationary wall, allowing the participants to move safely around the horse. Once settled, the participants are introduced to the activity, Breathe With. Breathe With is a relaxation strategy for the person as the horses' respiration rate feels slower. This activity asks the participant to wrap one's arms around the horse while placing one's chest

against the horse's chest in an effort to feel, and eventually sync, to the horse's breathing rate. This involves the participants thinking about their body placement, position, and internal thought process. In an effort to feel and mirror the horse's breath, the horse's body offers a warm, sturdy tactile presence offering a mechanism to maintain physical and mental presence and become mindful of one's own breathing. Once everyone experiences Breathe With, the participants and the volunteers take three different horses into the arena to learn how to lead with intentionality.

In the third session, the Veterans are about six weeks into the residential treatment program – they are starting to unpack and work through the burdens of their PTSD. Thus, we engage them in a different type of activity that is less about developing horse skill, and more about horse partnership. Offering to partner with a horse, an animal many times their size and stature, is an empowering opportunity that requires a present, calm, confident mind. The Veterans enter and begin the same as in the first and second session, with the classroom and then grooming. Then, they are given several bean bags, post-it notes and masking tape. They are asked to write a stressor, burden or challenge on a post-it note, then fold the post-it notes in half and tape each note to a bean bag. No one looks at the post-it notes but the person who wrote it.

Once finished grooming, the Veterans gather in the arena. The task is to use cones, poles, and other arena supplies to collectively make an obstacle course. This can be a large challenge for some, because of the lack of direction. No one is identified as the leader- the instructions are just to build a course. After about ten-minutes, the facilitator asks to be walked through the course; sometimes everyone agrees on the course pattern, other times they do not. If there is no agreement, there is a short conversation about the importance of agreement: does it matter if everyone does the same course? Typically, the Veterans decide that everyone can choose how they want to move through the space effectively.

The Veterans can choose which horse they would like to lead through the course. As they get ready to lead, the facilitator hands them their stack of bean bags. At this point, most have forgotten about the bean bags and are rather surprised to have them handed back at this time. The only instruction is that they "have to keep moving forward." The Veterans tend to struggle with the lack of explanation of what to do with the bean bags. However, we cannot tell them what to do; the bean bags symbolize their burdens, they are the only ones who can choose what to do with them. Some frequent responses are to stuff the bean bags into every pocket; another is to drop them immediately upon receiving them; others will discard the bean bags strategically – one here, one there, one in a pile of manure.

When all Veterans have taken a turn, everyone circles up in the middle of the arena facing inwards towards each other. Together, the Veterans share what the experience was like. Often there is frustration – they just want to lead the horse, why the bean bags? Of course, the frustration is intentional. The moral is that we are responsible for our own burdens and no one can discard them for us; we must choose how and when to do so. At the end, the social worker will go around and pick up all the bean bags. This is symbolic of the Veterans being able to let go of their burdens. And, more importantly, they are confident that their team is present for their needs and will pick up the pieces and support them.

In the final session, the Veterans work with the same horses from the prior session, beginning with grounded grooming. Presuming the weather is nice, the last session is a long walk out on the trails. The simple act of walking slowly, alongside their horse, getting fresh air and sun is relaxing and therapeutic. The Veterans are also demonstrating their horsemanship skills in doing this task. Throughout the 30-minute trail walk, the Veterans alternate leading different horses. Occasionally, the environment poses challenges, but after 8-weeks together, and with the horses, the Veterans help to calm and refocus each other.

Methods

The purpose of the evaluation was to understand, through participant self-report, the assets and challenges of working with horses in partnership. The study administered surveys to participants to gain insight into assets and opportunities which can be used to strengthen the equine partnership program between the Veterans Affairs (VA) and Fieldstone Farm (IRB# 20180404).

Sample

In the calendar year of 2019, the Farm served 114 Veterans. The study utilized a convenience sample, all female participants who entered the program between February 2019 and October of 2019 were invited to participate; in total 29 participated (59%). The population sample was specific to a particular VA program that services women Veterans. The VA and the Farm have an established partnership that the VA brings a group of women to the Farm every other week. Even though the women are all in the same program, the individuals varied week to week because the program offers a rolling enrollment for treatment. Throughout their treatment, a majority of women came for multiple consecutive sessions.

Data Collection And Measures

When participants entered the Farm, they were met by the social worker in the front atrium. The social worker provided the consent form to any new participants. If new, each participant was given the Toronto Mindfulness Scale to complete for a baseline marker. The Toronto Mindfulness Scale is a thirteen-item scale designed to measure curiosity and decentering; two core constructs of mindfulness²³. Decentering “is a process of stepping outside of one’s own mental events leading to an objective and non-judging stance towards the self”²⁴. Curiosity is a willingness and interest to learn in an open, non-judgmental manner about one’s self through processes and experiences²⁴. The scale is noted to have good psychometric properties including criterion validity and internal consistency²³. Each of the thirteen statements offer response options of 1/“Not at All” to 4/“Very Much”. While the Scale does not have purposeful cut-offs to denote levels of Mindfulness, the Scale was used to establish a baseline understanding of the participant’s general state of Mindfulness upon entering the program.

Following, each were asked to complete the Mindfulness Scale; a one question scale for perceived mindfulness in a given moment. The Mindfulness Survey was provided to Veterans upon arrival at the Farm for each session, and just prior to departure. The Mindfulness Scale was a researcher created instrument (see Table 1) based on Face Scales used to report pain intensity. The variety of Face Scales have consistently demonstrated strong reliability and validity²⁵. Shifting from faces to temperature is consistent with the emotional conjecture that the faces seek to stimulate.

All Veterans were asked to complete an end-of-program evaluation at the conclusion of their last session. All data collected were deidentified with only the date included to indicate cohort.

INSERT FIGURE 2

The Program Evaluation is a written self-report survey about the participant’s experience. Participants are asked to indicate the number of times they came to the farm. Participants were asked to rank the activities on a Likert-scale

from 1/“did not like this activity”, to 5/“Highlight of the Entire Program”, with an option of “N/A”. The activities included: grooming in crossties, leading the horse on trail, watching the horse in the arena, and mindful activities. Participants were asked to rank the helpful and supportive nature of the staff, and volunteers, on a scale of 1/“Not Supportive” to 5/“Always Supportive”, with an option for “N/A”. Specific to mindfulness, participants were asked to rank, on a scale of 0/“Not at all” to 10/“Very much”, “How much has spending time with the horses helped you to be mindful?” Open-ended questions included: “what was your favorite moment?”, “What made the biggest impression on you at the Farm?”, “How will what you learned help you after this program?”, and, “From your experience with us, what recommendations do you have to improve our program?”. Finally, the survey offered space at the end for any other thoughts of feedback.

All questionnaire and data sheets were anonymous. There was a blank line for the date on each form to create appropriate cohorts for data analysis. No identifiable information was collected on the measures. All data was deidentified and aggregate; thus, data analysis was at the cohort level.

The data from the sample was analyzed in two ways: 1. individual responses (Toronto Mindfulness Scale, program evaluation); 2. researcher created cohorts based on attendance of those who attended consecutive session together (Researcher Created Mindfulness Scale). Individual data allowed for identification of baseline mindfulness, while the cohort level data allowed researchers to explore the impact of group dynamics on the individual’s mindfulness.

Results

The thirteen-item Toronto Mindfulness Scale, with statement responses from 0 to 4, yielded data that informed the baseline of self-identified mindfulness of the Veterans. Seven of the items measured decentering (grey in Table 1), while six measured curiosity (black in Table 1). Table 1 details the mean score response on each item (N = 28). When taken together, the construct of curiosity had a mean of 2.14, and the construct of decentering had a mean of 1.88. All participants scored greater than 1, and less than a 2.5. Using the scale as a tool to understand individual’s level of self-identified mindfulness, the cohorts demonstrated consistency of responses and potential to increase mindfulness skills (i.e. decentering and curiosity).

INSERT TABLE 1

The Mindfulness Survey responses were averaged for pre- intervention, then for post- intervention. The pre-intervention survey responses ranged from 2.3 to 6.5 with a range of 0 to 10 (M = 4.59, SD = 1.29). The post-intervention survey responses ranged from 6.7 to 9.2 with a range of 0 to 10 (M = 8.2, SD = 0.69).

A paired samples t-test was conducted to determine the impact of the equine intervention and the mindfulness by comparing pre and post scores on the mindfulness scale. There was a significant difference in the scores from pre-intervention (M = 4.59, SD = 1.29). to post- intervention (M = 8.21, SD = 0.69) conditions ($t=-9.43$, $df = 13$, $p < .001$).

In the program evaluations, participants shared that their favorite moments were (Q3): grooming, and Breathe With. In the question asking what the participants will take away from the program (Q9) one participant shared “The horses have taught me a lot about myself”; a common theme across respondents.

Veterans who participated in the program demonstrated a statistically significant increase in self-identified mindfulness. There was a relatively wide range (2.3–6.4) in the pre-session scores on the Mindfulness Scale. Since the survey did not ask “why” a participant was choosing a score, there is a reliance on observed and shared feedback. Some of the variation was due to the stress of the 45-minute van drive from the VA to the Farm. Others commented on the positives and negatives of their treatment process, and of the innate group dynamics. The variation of individuals for each session may have impacted individual’s self-perceived mindfulness since their relationships extend into the treatment process.

The data was supported by the qualitative data, including feedback from the Veterans. The clear intention of each session is an asset to provided consistency from one cohort to the next. In the larger context of the population served, Veterans, just like anyone who has experienced trauma, need to feel safe in their environment – physically and emotionally. Presumably it is through a sense of safety that participants are able to access and appreciate mindfulness. As the data demonstrates an increase of mindfulness, what we may actually be seeing is the impact of a safe and secure environment which enables the individual to relax and be present – the very essence of mindfulness.

Based on the results, four recommendations for this program and programs of this nature include: 1. establish the environment first; 2. focus on mindfulness; 3. time to breathe; 4. and, consistent horses. First, the priority is to establish an environment of safety and trust. In order to engage in the activity, the participants had to first feel safe. Safety includes many constructs that are beyond the scope of this study, however, it was evident that meeting the participants when they arrive, consistency of volunteers and staff, a set routine for the physical space used in programming, and a clear understanding of the activity before expectation of engagement all facilitated the creation of a safe environment. Safety is not only established at the outset of the program, but also a continual investment. To that end, it is important to allow participants to engage in activities as they are comfortable providing participants the option to actively disengage or decline participation as they feel necessary. This is why it is important to have established physical space – if they do not want to be in the arena, they can go to the classroom. Furthermore, having appropriate staffing allows for the activity to continue while also supporting those who do not wish to do so.

Safety also includes the horses. For many of the participants, these sessions are the first experiences with horses. By allowing time to establish physical space, inter-personal, and inter-species, participants are able to explore the constructs of mindfulness – specifically decentering and curiosity:

“Jim [horse] was reaching closer to me after grooming. I was trying to figure out if he was trying to push me away or get closer. I gave him a few moments to let me know and he was investigating my bubble, and stayed...my communication with the whole universe has improved through my connection with the horses. My increase in mindfulness helps with all aspects.”

Second, focus on mindfulness alludes to the overall importance of mindfulness with the horses. Being and feeling present was evidently important to the participants. There are a variety of ways to define mindfulness, however, in the simplest form, Veterans are engaging in presence of mind and body. Horses encourage this mental and physical behavior because of their innate need to consistently be present. As prey animals, horses are present as a mechanism of self-protection and preservation. Thus, they model the behavior the intervention seeks to teach: “My mind state and attitude effects the horses. Also, they remember and respect positive change”; “To stay present in the moment”; and,

“The entire experience! Dash was one horse I bonded with, but any opportunity to ‘love’ on the horses. Seeing how happy and relaxed I made them made me even happier. This was just a great experience”.

Third, as participants become mindful, the favored activity is Breathe With (explained above in Sessions). Breathe With is not an activity that should be rushed, in fact, this is an opportunity to teach the skill of patience, and comfort in quiet. The idea is to relax with the horse. As one hand reaches up over the horse’s back, their other hand reaches under the belly. The person’s chest is then level with the horse’s heart-girth (behind the shoulder). The idea is to relax to the point of matching the breaths in and out to the horse. At the same time, the tactile sensation of the horse’s large, warm body is often a calming experience. However, if a person is not relaxed, the horse will often move away from the pressure of their hands and body. Even when a person says they are calm, the horse can feel if they are harboring anxieties. Rather than correcting the person, the facilitator can simply reframe to the horse: “it seems that Romeo isn’t ready to stand still. What can you do to help him to relax and settle?” After a few breaths, stretches, cooing words, or reflection the person works with the horse to actually regulate their self, thereby allowing the horse to settle – and together, they breathe. The whole process may take five-minutes, or it can take thirty-minutes, either way, the experience is meaningful and mindful.

Finally, the consistency of horses throughout the cohort cannot be overstated. The program strives to bring the same horses that are in the first session throughout the consecutive sessions. If a horse is not available from one session to the next during the same cohort of participants, it is important to communicate this to participants at the beginning of the session. Then, give the option to see the horse and perhaps give a treat. An interaction that may seem insignificant to an observer may be the highlight of an entire experience. For example, a participant wrote on the evaluation that their favorite moment was “When Butterscotch hugged me”; five participants wrote about a particular horse they bonded with. This may not have been an intentional, reciprocal moment, like Breathe With. Rather, perhaps the group was working through an obstacle course. The facilitator noted all participants to be leading their horses around the arena for the obstacle course. After a set of ground poles, a participant stopped the horse, gave a scratch on the neck to which the horse turned towards the person then back ahead, and then they walked on together. This fleeting moment was shared as the highlight of the entire session – a hug from a horse after accomplishing a difficult task together.

Discussion

While the popular appeal of EFT is evident, interest is expanding faster than the research base, risking the proliferation of costly and potentially ineffective or dangerous interventions. Though caution is warranted, a small but growing research base demonstrates implicit and explicit benefits of animal assisted therapies in general^{7,21}. Nimer & Lundahl⁷ conducted a meta-analysis across various modalities of animal assisted therapy. Of the 49 animal-assisted therapy intervention studies included in their analysis, a “moderate effect size in improving outcomes” across domains of “...behavioral problems, and emotional well-being” (p. 225) was evident. But Anestis and colleagues²⁶ review of 14 peer reviewed studies found serious threats to validity and reliability that give reason for caution. They suggest that, “...in view of the current evidence base, individuals in need of mental health services [should] avoid seeking out EAT [Equine-Assisted Therapy] and treatment centers and avoid practicing this approach...until a strong research foundation for this treatment emerges” (p. 1129). And, they specifically call upon caution within the Veteran community. Although we do not support the discontinuation of EFT we agree that a greater understanding of the mechanisms and utility of equine partnerships is needed to expand the understanding of the potential uses and benefits^{11,26,27}. Therein is the gap that this study sought to address and fill.

Strengths

The study offered several strengths that support evidence of an effective EFT program intervention for Veterans. First, the design of the study included a robust sample size with enough power to garner statistically significant data. Second, expanding on cross-sectional studies, the current design was able to capture data over a duration of time including multiple sessions and cohorts. Third, the use of previously developed measures is a strength of this study as they allowed for the capture of reliable and valid, quantitative data. Fourth, all sessions were structured like a curriculum and replicated across sessions. This is incredibly important for the reliability of the data, and speaks to the larger critique of the field wherein critiques tend to lean on the lack of a curriculum or manual to negate the findings of EFT (and Animal Assisted Therapy generally). This parallels Wharton¹⁶ who expressed promise in a manualized intervention as an effective treatment for veterans with PTSD. However, the study failed to prove statistical significance and the manual is not easily accessible in the equine industry. Finally, the study would not have been possible without the collaborative partnership between the VA and the Farm; a strong collaboration set the foundation for serving the population.

Limitations

Limitations of this study are predominantly related to the simplicity of the measures used. Had the data been participant specific, researchers could have included analysis of change over time by personal experience. Identifiable information could have led to measuring the bond between horse and participant (e.g. does partnering with a specific horse impact the experience? Do participants bond with a specific horse?). A separate but distinct limitation is the complexity of the group served; since the women engage in a variety of community-based interventions throughout their treatment process, the long-term effects of the EFT are not known and were not measured in this study. It is our hope that this data can be viewed as a foundation for future studies that explore these variables in more depth.

Future Directions

Future exploration is encouraged to consider Veterans' previous experience with animals, specifically equines. Some participants who had prior experience with equines either during service or previous work experience tended to rank their experience lower than those who were brand new to equines. Furthermore, fear can often be influential in the overall experience working with equines. More exploration of individual culture and cultural experience with animals may also be beneficial. Culture could potentially influence the person's perception and relationship with animals further impacting the experience within the equine program²⁸.

A prominent theme in the program evaluation on an open-ended question (Q9) was the women's introspective reflection that they learned something about themselves in interacting with the horses. Ferruolo¹⁷ found a strong correlation between "Learning about Self" and EFT, however it was not statistically significant. Based on the findings of this study the theme may prove statistically significant in a more robust sample. Since this seems to be a reoccurring theme it may be worth exploring with intentionality in future EFT programming and research.

Conclusion

Overall, the current study demonstrates that Veterans' interactions with equines impacts their mindfulness throughout their experiences at the Farm. The Veterans established a significant increase in their mindfulness scores post-equine intervention. The study shows equine intervention facilitates the increase in mindfulness in veterans.

Declarations

List of acronyms

- Autism Spectrum Disorder (ASD)
- Cognitive–Behavioral Therapy (CBT)
- Cognitive Processing Therapy (CPT)
- Cognitive Processing Therapy Linked with Equine Therapy CPT-ET
- Civilian Health and Medical Program of The Department Of Veterans Affairs (CHAMPVA)
- Equine Assisted Therapy (EAT)
- Equine Facilitated Therapy (EFT)
- Equine Therapy (ET)
- Mindfulness-Based Cognitive Therapy (MBCT)
- Mindfulness-Based Stress Reduction (MBSR)
- Motivational Interviewing (MI)
- Post-Traumatic Stress Disorder (PTSD)
- Professional Association for Therapeutic Horsemanship International (PATH Intl)
- Veterans Affairs (VA)

Ethics approval of consent to participate

All applicable international, national, and/or institutional guidelines for the care and use of animals were followed. All procedures performed in studies involving therapy dog volunteers were in accordance with the ethical standards of the institution at which the studies were conducted (University and Hospital) and with the national organization for the certification of the therapy dogs.

Informed Consent: Informed consent was obtained from all caregivers/parents of child participants, researchers, and dog-handler volunteers included in the study.

Informed Assent: Informed consent was obtained from all child participants, researchers, and dog-handler volunteers included in the study.

Consent for Publication

All authors have read the manuscript as submitted and consent to publication.

Availability of supporting data

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

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Conflict of Interest: The authors declare that they have no competing interests.

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Author's Contributions

- AV: substantial contribution to the conception, design, data analysis and interpretation, and discussion content
- IB: substantial contribution to the conception, design, discussion content, formatting and editing
- KF: substantial contribution to the conception, IRB oversight, interpretation

All authors have approved the final version for submission.

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Tables

Due to technical limitations, Tables 1 & 2 are only available for download from the Supplementary Files section.

Figures

Figure 1

Flow diagram of systematic mapping review and included studies

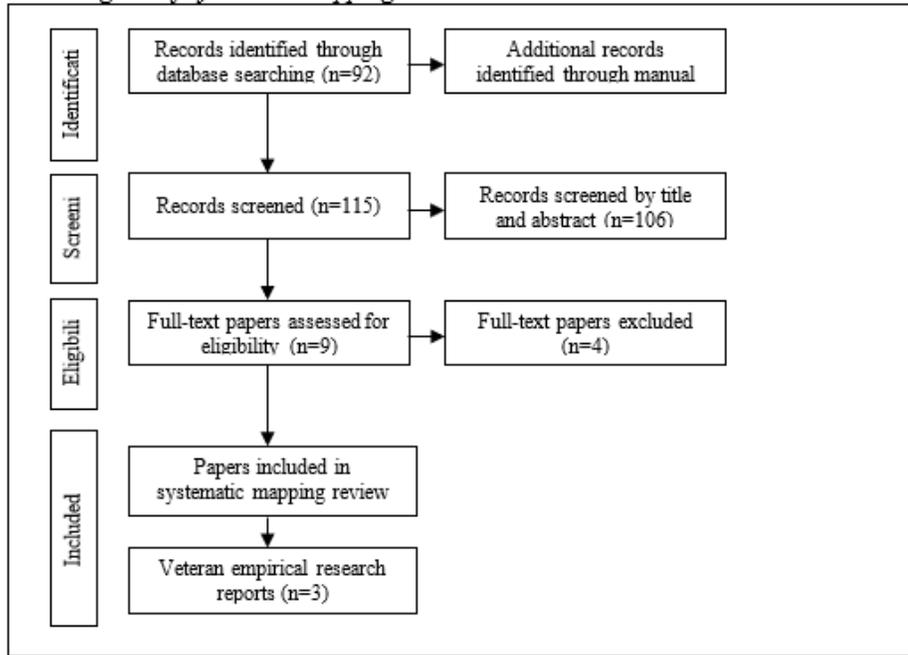


Figure 1

Flow diagram of systematic mapping review and included studies

Figure 2

Mindfulness Scale

Today's date: _____

Pre- equine session:

Post-equine session:

Please draw a line through the color below that best reflects your current state of Mindfulness:

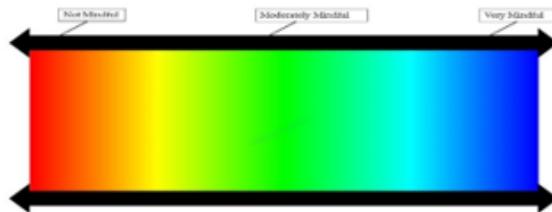


Figure 2

Mindfulness Scale

Supplementary Files

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