

Effects of Equine Assisted Activities on PTSD Symptoms, Coping Self-efficacy, Emotion Regulation and Social Engagement in Military Veterans

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Summary of Project: The project aims to test the effectiveness of a 6-week human-horse interaction and therapeutic horseback riding (THR) program in decreasing symptoms of Post-Traumatic Stress Disorder (PTSD), improving beliefs in veterans' ability to cope, and increasing emotion regulation and social engagement among 40 previously deployed U.S. military veterans. Veterans who express interest in participating and meet eligibility criteria are randomly assigned to the Riding Group (RG) or a waitlist Control Group (CG). Those randomly assigned to the RG spend one hour per week for 6 weeks interacting with and riding the same horse at one of three Professional Association of Therapeutic Horsemanship (PATH, Intl.) accredited riding centers in Mid-Missouri under the supervision of an Occupational Therapist and Certified Riding Instructor. Riding is directed by a systematic lesson plan. We collect data from the veterans upon enrollment into the study, after 3 weeks of riding (midpoint), and again after 6 weeks of riding (endpoint). Veterans randomly assigned to the CG complete data collection instruments when they enter the study, 3 and 6 weeks later while they wait to convert to the RG. Then, they have the option to convert to the RG and complete data collection instruments again at 3 and 6 weeks while in the RG.

Preliminary Results: Eighteen participants have been enrolled in the study. Riding sessions are occurring at Cedar Creek Therapeutic Riding Center (n=14) and Therapeutic Horsemanship (n=4). Table 1 shows demographic characteristics of the participants.

Riding Group: Nine veterans were randomly assigned to the RG. Five have completed the THR program. Two veterans are still riding.

Control Group: Nine veterans were randomly assigned to the waitlist CG. Seven of these veterans have completed the 6 week CG period and have converted to the RG. One veteran has not yet completed the CG period.

Attrition: Two veterans randomly assigned to the RG have dropped out. Two veterans randomly assigned to the CG, who have converted to the RG, have dropped out after completing 3 weeks of THR. One veteran randomly assigned to the CG did not convert to the RG and dropped out of the study. Table 2 shows veterans' reasons for dropping out of the study.

Table 1: Sample Demographic Characteristics

		(N=18)
Age (years)	Mean	49.89
	Range	29-68
Gender	Males	14
	Females	4
Race	Caucasian	12
	African American	4
	Native American	1
	Other	1
Marital Status	Married	6
	Divorced	6
	Never Married	2
	Widowed	2
	Other	2
Education	High School	5
	Some College	10
	Trade School	1
	Bachelors	2
Number of Children	Mean	2.06
	Range	0-8
Military Branch	Army	5
	Air Force	1
	Marines	6
	Navy	6

Table 2: Veterans not completing the study

Number	Weeks of study completed	Reason
1	6 weeks in CG	Chose not to convert to RG
1	6 weeks in CG, 2 weeks in RG	Family issues
1	3 weeks in RG	“Didn’t feel [she] could bond with horse”
1	1 week in RG	Became unreachable
1	6 weeks in CG, 3 weeks in RG	School obligations

Outcome Measures:

Table 3 illustrates the preliminary data of the primary outcome measures—PTSD (PCL-M), coping-self efficacy (CSES), emotion regulation difficulty (DERS), and social/emotional loneliness (SELSA). Conclusions from these preliminary data are not possible given the small numbers of veterans completing the study to date. Means, ranges, and standard deviations are shown for these instruments at baseline, 3-weeks, and 6-weeks for the RG, CG, and for CG participants who converted to the RG after their waitlist CG period (and are still riding). Trends

in PTSD are in the predicted direction in both post-test measurement points (RG shows decreased PTSD levels and the CG shows increased PTSD levels). In two other outcome measures (coping self-efficacy and social/emotional loneliness) the data show trends in the predicted directions from baseline to the 3-week measurement; however this is not consistent in the 6-week measurement. Trends in emotion regulation difficulty scores are impossible to interpret at this early stage given that patterns are not consistent across measurements.

Table 2: Descriptive Statistics for PCL-M, DERS, CSES, & SELSA

		Week	RG (n=9)	CG (n=9)	CG converted to RG (n=8)
<i>PTSD Checklist-Military (PCL-M)</i> Decrease desired	Mean (SD) Range	0	59.56 (13.50) 42-79	55.13 (20.49) 21-74	58.29 (18.15) 31-76
		3	55.43 (17.99) 35-82	57.38 (14.83) 31-73	47.20 (16.15) 28-70
		6	51.67 (26.01) 26-78	58.29 (18.15) 31-76	<i>Still Riding</i>
<i>Difficulties in Emotion Regulation (DERS)</i> Decrease desired	Mean (SD) Range	0	105.56 (19.27) 75-134	110.63 (35.63) 58-149	107.57 (39.10) 43-142
		3	93.14 (28.13) 61-147	108.88 (27.49) 58-147	110.60 (10.59) 93-120
		6	105.00 (14.79) 95-122	107.57 (39.10) 43-142	<i>Still Riding</i>
<i>Coping Self-Efficacy Scale (CSES)</i> Increase desired	Mean (SD) Range	0	91.67 (53.35) 20-171	135.75 (63.86) 46-255	122.43 (59.39) 61-236
		3	117.00 (64.07) 51-209	115.50 (66.84) 35-255	130.20 (52.57) 49-192
		6	95.33 (14.57) 80-109	122.43 (59.39) 61-236	<i>Still Riding</i>
<i>Social/Emotional Loneliness Scale for Adults (SELSA)</i> Decrease desired	Mean (SD) Range	0	58.11 (12.93) 41-82	54.63 (17.47) 33-85	61.71 (21.69) 18-81
		3	54.86 (10.61) 45-76	60.86 (19.57) 38-88	57.20 (23.53) 26-88
		6	60.67 (9.50) 51-70	61.71 (21.69) 18-81	<i>Still Riding</i>

* Conversion of CG to RG after 6 weeks of CG period (1 participant did not convert)

Qualitative Findings:

Each week during the THR sessions, veterans are asked to complete a riding diary to describe their experiences interacting with and riding the horses. Below are examples of participants' views about the THR program.

“He’s just an old work horse, like me. We get along well. It is good to get outdoors and do something different.”

“I felt great, relaxed and very calm. Before I got on the horse I had a headache and after walking a while, it was gone.”

“Quiets your mind, almost like meditation.”

“I think I was smiling the biggest part of the time that I was on the horse.”

“I am a little slow at interacting with anyone, [but] I am more comfortable with the horse.”

“I have been looking forward to this for all week; surges of emotions from the past.”

“I think I prefer the horse to my mental health professionals.”

“Thank you so much for selecting me for this. When I got the letter I called within 2 hours to join. I knew right away I would do this.”

“This means so much to me. I feel so relaxed when I ride. Thank you for choosing me!”

“Thank you for doing something like this program for veterans.”

Project Timeline:

a. Completed

University of Missouri Health Sciences Institutional Review Board Approval: 5/2013

Harry S. Truman VA Research & Development Committee Approval: 12/31/2013

Recruit, hire, and train project staff: 5/2013

Recruitment and enrollment of participants began: 3/2014 and is ongoing

Therapeutic horseback riding sessions began: 4/2014 and are ongoing

b. Yet to Complete

Continue recruitment and enrollment of participants: through 8/2014

Continue therapeutic horseback riding sessions: through 9/2014

Mid-point data collection, analysis, and reporting: 6/2014

Final data collection, analysis and reporting: 9/2014 – 11/2014

Disseminate findings: mid-year 2015

Changes from Original Application Timeline:

The major change in the timeline presented in the original grant application was the length of time it took to receive Research and Development approval from the Veterans Administration (VA). The challenges with this process were shared regularly with K.C. Henry of the Horses and Humans Foundation.

Project Challenges:

There have been three challenges in conducting this project. The first was the lengthy and complicated VA approval process. The second challenge is the fact that we have been unable to identify participants for the third therapeutic riding center (Ride on St. Louis) due to the inability to recruit participants who are not registered to receive services from the Harry S. Truman Memorial Veterans hospital in Columbia, MO (this VA will not treat nor assume liability for care of participants enrolled in the study who are registered for services with the St. Louis VA which is located closer to the Ride on St. Louis center—and vice versa). This means that we have not found, despite searching many zip codes in the Columbia VA database, veterans who are registered for services at the Columbia, MO VA and living close enough to Ride on St. Louis to participate there. We will be able to complete the study with veterans recruited who reside near the Cedar Creek Therapeutic Riding Center and Therapeutic Horsemanship. A third challenge is our need to fit the study into the regularly scheduled riding sessions of the THR centers. This creates an uneven distribution of participants into groups. However, taking this into

account, our timetable will result in our accruing the complete sample of 40 veterans. Our recruitment will also take into account anticipated attrition given our experiences to date.

Expenditure of Funds: \$9,748.11

Funding period ends 9/30/2014

Budget: budget expenditures to date and remaining budget items listed, with any changes from the original application noted and explained. See attached budget report

Invoice signed by grant manager for expenses incurred (up to 50% of grant award)

Anticipated Completion: At the time of this report, half of the target enrollment has been met. We respectfully request that the funding period continue through December 31, 2014 for completion of the study.

Media Coverage of the project:

<http://mizzouadvantage.missouri.edu/news/research-foundation-awards-50000-to-rechai-to-study-therapeutic-riding-effect-on-veterans-with-ptsd-and-traumatic-brain-injuries/>

<http://holistichorse.com/equine-therapy/horses-as-therapy/2178-effects-of-therapeutic-riding-on-veterans-studied>

Thank you very much for your generous and continued support of the study.

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