



The current state of the science of EAS for veterans: Challenges and opportunities to move the field forward.

By
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Who I am

- Horse person
- Psychiatrist by training
- Director of Research and Equine-assisted Services, Whole Health Service, VA Salt Lake City Health Care System
- Professor of Psychiatry (Clinical), University of Utah School of Medicine
- Adjunct Professor of Animal, Dairy and Veterinary Sciences, Utah State University
- Mindfulness teacher and practitioner
- Certified by EAGALA as MH
- PATH Intl. CTRI and ESMHL
- CHA EFM and EWI
- Veteran of the army and air force



Stop me with questions or comments



Discussion rather than a lecture





Agenda



- ▶ The equine-assisted services program at the VA Salt Lake City Health Care System
- ▶ Why equine-assisted services for Veterans?
- ▶ The state of the field in terms of research and evidence
- ▶ Research recommendations to move the field forward
- ▶ Development and evaluation of a novel EAS intervention for Veterans with trauma histories
- ▶ Questions and answers



Agenda



- ▶ Most of the presentation today is about veterans with trauma histories
- ▶ However, much applies to the broader field of EAS for all veterans as well as the entire EAS field



VA Whole Health

- ▶ Model of healthcare that focuses on health promotion, disease prevention, Veteran engagement and the use of complementary and integrative health



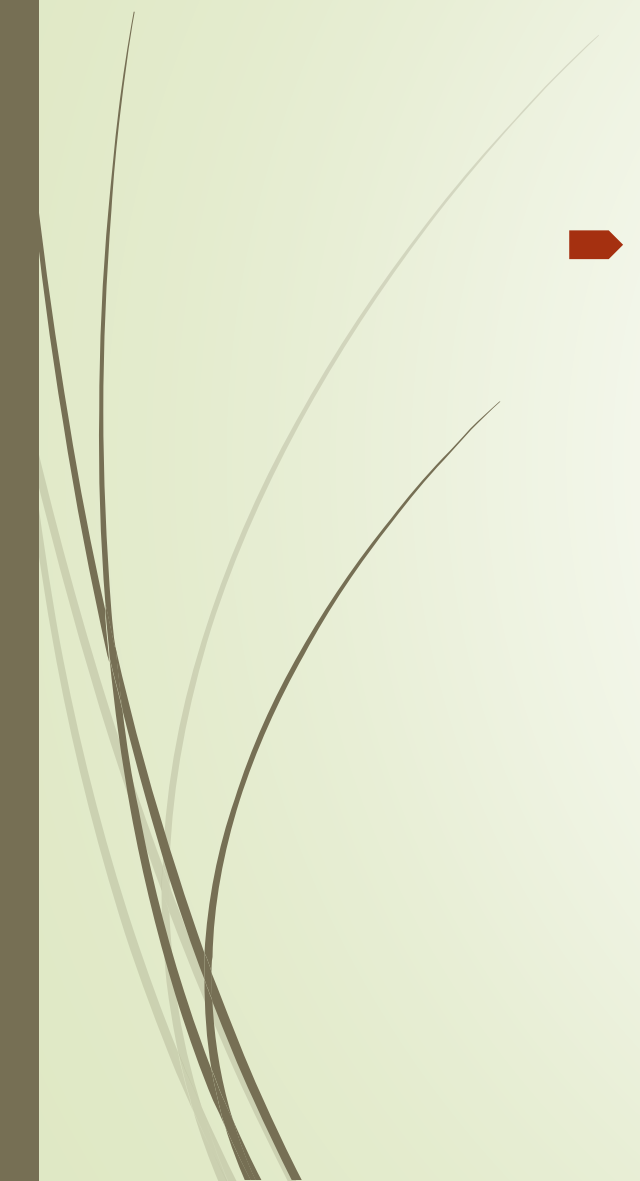
Live Whole Health.

VA Salt Lake City EAS Program





Horses Helping Veterans

- EAS program created as a collaboration between:
 - VA Salt Lake City Whole Health Service
 - VA Salt Lake City Mental Health Service
 - Community equine facility partners
- 



Horses Helping Veterans

- Mission:

- Provide PIH/EAL, horsemanship skills training and recreational riding to Veterans in the VA Salt Lake City Healthcare System catchment area
- Conduct and publish research regarding the benefits of EAS for Veterans
- Provide staff resiliency retreats for VA employees



Why EAS for veterans with trauma histories?

- ▶ Among military personnel and Veterans, rates of PTSD approach 30.%
- ▶ In addition to the symptoms of PTSD, this condition is associated with impairment in:
 - ▶ social
 - ▶ occupational, and
 - ▶ physical functioning
- ▶ As well as:
 - ▶ reduced quality of life
 - ▶ physical health problems

Hoge, C. W.; Castro, C. A.; Messer, S. C.; McGurk, D.; Cotting, D. I.; Koffman, R. L., Combat duty in Iraq and Afghanistan, mental health problems, and barriers to care. *N Engl J Med* 2004, 351, (1), 13-22.

Suris, A.; Lind, L., Military sexual trauma: a review of prevalence and associated health consequences in veterans. *Trauma Violence Abuse* 2008, 9, (4), 250-69.

APA, *Diagnostic and Statistical Manual of Mental Disorders, Text Revision*. . American Psychiatric Association Publishing: Arlington, VA, 2022.



Why EAS for veterans with trauma histories?

- ▶ There are evidence-based psychotherapies and psychopharmacological interventions for PTSD that are effective
- ▶ However, there are limitations in both treatment engagement and response to these conventional interventions
- ▶ EAS interventions might potentially fill these gaps by enhancing either treatment engagement or outcomes or both



Why EAS for veterans with trauma histories?

- ▶ The research indicates that response to conventional treatments is limited by both:
 - ▶ Partial or no response
 - ▶ Underutilization

Marchand, W. R., Potential Mechanisms of Action and Outcomes of Equine-Assisted Services for Veterans with a History of Trauma: A Narrative Review of the Literature. *Int J Environ Res Public Health* 2023, 20, (14).



Why EAS for veterans with trauma histories?

- ▶ Studies of response to conventional treatments for PTSD among veterans:
 - ▶ One-third to one-half receiving exposure-based treatments demonstrate no clinically significant improvement
 - ▶ Only 23% initiated an evidence-based psychotherapy and of those, only 9% completed treatment
 - ▶ 35% discontinued pharmacologic treatment within 30 days and 72 % discontinued within 180 days

Steenkamp, M. M.; Litz, B. T.; Hoge, C. W.; Marmar, C. R., Psychotherapy for Military-Related PTSD: A Review of Randomized Clinical Trials. *JAMA* 2015, 314, (5), 489-500.

Letica- Crepulja, M.; Stevanovic, A.; Protuder, M.; Grahovac Juretic, T.; Rebic, J.; Franciskovic, T., Complex PTSD among treatment-seeking veterans with PTSD. *Eur J Psychotraumatol* 2020, 11, (1), 1716593.


Maguen, S.; Li, Y.; Madden, E.; Seal, K. H.; Neylan, T. C.; Patterson, O. V.; DuVall, S. L.; Lujan, C.; Shiner, B., Factors associated with completing evidence-based psychotherapy for PTSD among veterans in a national healthcare system. *Psychiatry Res* 2019, 274, 112-128.



Why EAS for veterans with trauma histories?


- Finally, conventional interventions may not address:
 - military sexual trauma (up to 15 % of female Veterans)
 - trauma-related guilt
 - moral injury
 - disruptions of attachment

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What EAS services are being provided for veterans currently?

- ▶ Limited information available
- ▶ Programs affiliated with Veterans Affairs Health Care Systems (VAHCSs)
- ▶ Programs not directly affiliated with VAHCS




EAS programs affiliated with Veterans Affairs Health Care Systems

- ▶ No data on exact number or details of programming offered
- ▶ Monthly consortium call with 85 participants – but no information regarding:
 - ▶ How many have functioning programs
 - ▶ How many different programs represented
- ▶ Spreadsheet that lists 10 programs, however:
 - ▶ Not well maintained
 - ▶ Many programs likely not listed



EAS programs affiliated with Veterans Affairs Health Care Systems

- ▶ Challenges to internal VA programming
 - ▶ No mandate to provide these services
 - ▶ Minimal internal organization – grassroots program development
 - ▶ Funding challenges
 - ▶ No standardization across programs
 - ▶ Challenges finding community programs



EAS programs affiliated with Veterans Affairs Health Care Systems

- ▶ Challenges to internal VA research
 - ▶ Most program staff are not trained to, or interested in being, investigators
 - ▶ Time challenges
 - ▶ Funding challenges



EAS programs not directly affiliated with VA

- ▶ Many community programs offer services to veterans
- ▶ However, limited data available
- ▶ PATH Intl.) accredited centers providing services to veterans, grew from 178 to 267 centers from 2011 to 2020
- ▶ Eagala now has a Military Services Designation.



EAS programs not directly affiliated with VA

- ▶ VA Adaptive Sports Grant Equine Program
- ▶ Challenges:
 - ▶ Funding
 - ▶ Connecting with VA
 - ▶ Participant engagement

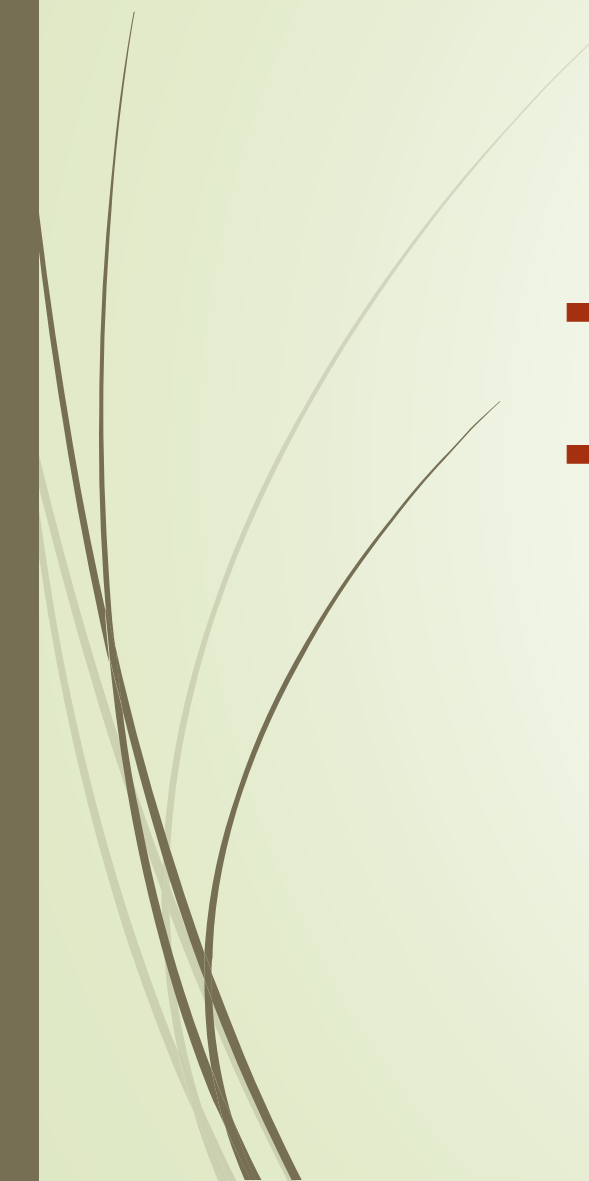


EAS programs for Veterans

- ▶ Many programs providing services
- ▶ Lack of data regarding:
 - ▶ Total number of programs
 - ▶ Types of services offered
 - ▶ Numbers of Veterans served

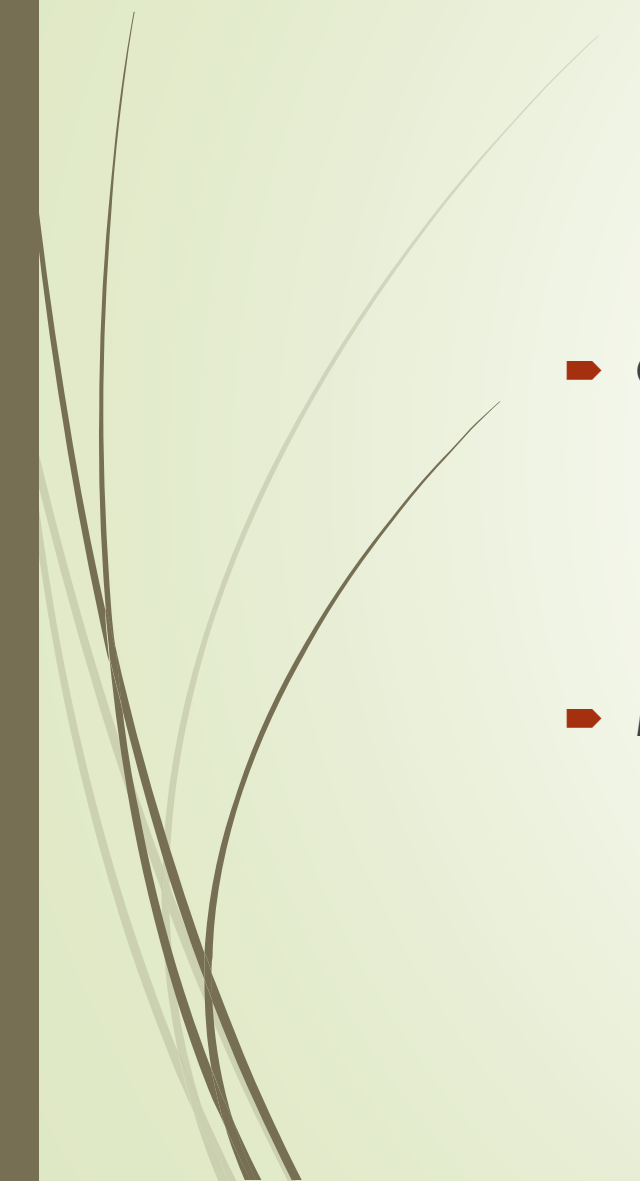


EAS programs for Veterans

- ▶ Many programs providing services
 - ▶ Is there an evidence base to support the use of EAS for Veterans?
- 



EAS for veterans – state of the research

- ▶ Outcome studies
 - ▶ Symptom reduction
 - ▶ Transdiagnostic benefits
 - ▶ Mechanism of action studies
- 



Existing outcomes research

- ▶ EAS studies of non-Veteran populations with trauma exposure
 - ▶ reduced symptoms of depression among children
 - ▶ decreased anxiety, and externalizing behaviors
 - ▶ reductions in PTSD symptoms.
 - ▶ a meta-analysis of EAS for at-risk adolescents with trauma histories found a medium effect size for seven investigations

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Existing outcomes research

- ▶ EAS studies of Veteran populations with trauma exposure
 - ▶ 23 studies in the literature
 - ▶ Of these, only three had a control group
 - ▶ Only one was a randomized trial
 - ▶ Also, one case study of a single Veteran

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Existing outcomes research

- ▶ EAS studies of Veteran populations with trauma exposure
 - ▶ sample sizes range from five to eighty-nine veterans
 - ▶ the majority report quantitative data, but five report qualitative data or mixed methods
 - ▶ four studies report physiologic outcome measures
 - ▶ several report interventions that are manualized or structured to facilitate manual development.

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Existing outcomes research

- ▶ Potential outcomes based upon the existing literature:
 - ▶ Transdiagnostic benefits
 - ▶ decrease arousal (HR, respiratory rate and BP)
 - ▶ Increased heart rate variability
 - ▶ Improved:
 - ▶ functioning
 - ▶ cognition
 - ▶ quality of life
 - ▶ wellbeing

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Existing outcomes research

- ▶ Potential outcomes based upon the existing literature:
 - ▶ Symptom reduction
 - ▶ Improved affect and decreased depression
 - ▶ Enhanced psychological flexibility
 - ▶ Decreased anxiety
 - ▶ Decreased substance craving

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Existing mechanisms of action research

- ▶ Potential mechanisms of action based upon the literature:
 - ▶ horse-human relationships, attachment, and bonding
 - ▶ enhancement of sense of control, autonomy, and assertiveness for participants
 - ▶ enhancement of Treatment engagement, and therapeutic alliance

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Existing mechanisms of action research

- ▶ Potential mechanisms of action based upon the literature:
 - ▶ Emotional mirroring and heart rate synchronization
 - ▶ Self-distancing through metaphor
 - ▶ Psychological flexibility, biophilia, and mindfulness

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Existing mechanisms of action research

- ▶ Potential mechanisms of action based upon the literature:
 - ▶ Decrease cortisol
 - ▶ Increased oxytocin
 - ▶ Increased HRV

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Current state of the field

- ▶ Conclusions based upon the available literature:
 - ▶ Field is in the very early scientific development stage
 - ▶ EAS is likely beneficial for veteran trauma survivors and may result in symptom reduction as well as trans-diagnostic benefits
 - ▶ Enough evidence to warrant large randomized controlled trials of EAS for veterans with trauma histories
 - ▶ Many challenges must be overcome to facilitate moving the field forward
 - ▶ Currently, EAS interventions must be considered complimentary interventions


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Current state of the field

- ▶ Limitations and challenges
 - ▶ Lack of standardized terminology
 - ▶ Lack of standardized interventions
 - ▶ Lack of rigorous studies
 - ▶ Mechanisms of action unclear


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Research recommendations to move the field forward

- ▶ Study standardized interventions that can be manualized to:
 - ▶ Ensure fidelity to the EAS model
 - ▶ Facilitate replication and multi-site studies
 - ▶ Support dissemination to the field if shown to be effective
- ▶ Randomized controlled trials
- ▶ Utilize both psychologic and physiologic outcome measures


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Research recommendations to move the field forward

- ▶ Assess for correlations between psychologic and physiologic outcome measures
- ▶ Careful management of many potential confounding variables, such as concurrent mental health treatment and psychiatric comorbidities
- ▶ Evaluate mounted versus ground-based activities


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Research recommendations to move the field forward

- ▶ Evaluate PIH/EAL versus horsemanship skills training/adaptive riding
- ▶ Evaluate the potential role of equine movement (mounted activities) on psychological and physiologic outcomes
- ▶ Survey the field?

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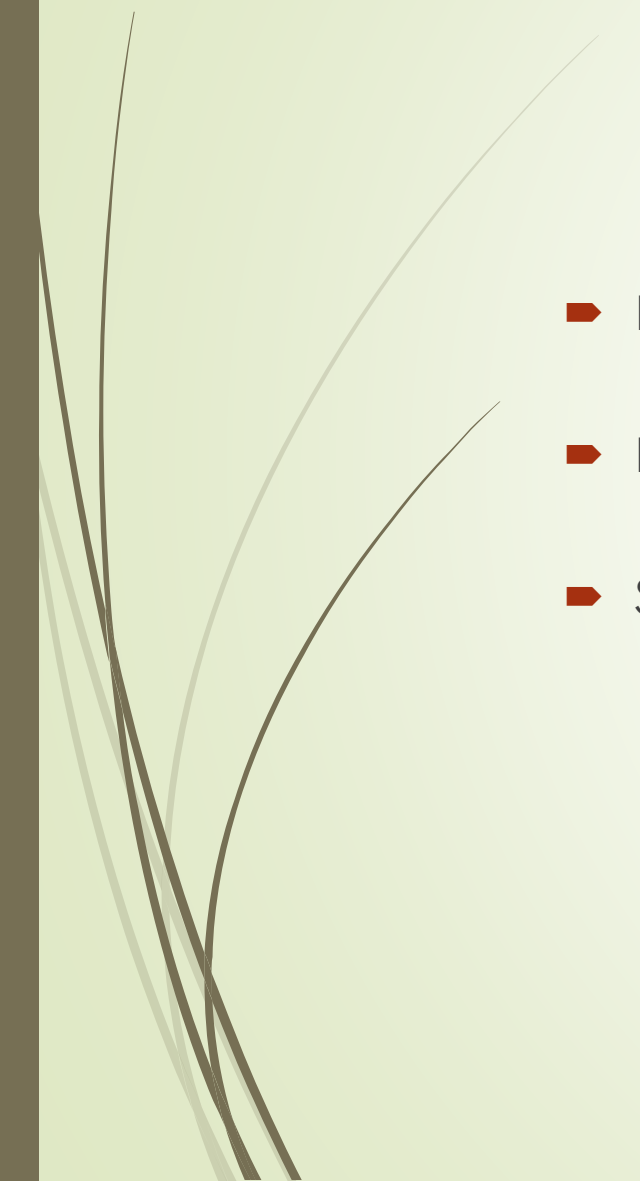
Research recommendations to move the field forward

- ▶ Compare various EAS models
- ▶ Compare EAS to conventional psychotherapy & pharmacology interventions
- ▶ Safety evaluations

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Challenges to EAS research

- Relatively few investigators interested in the field
 - Few funding sources and these are highly competitive
 - Studies are relatively difficult to do
- 

Development and evaluation of a novel EAS intervention for veterans with trauma histories

- ▶ Whispers with Horses





Development of the intervention

- ▶ Criteria for the intervention:
 - ▶ Evidence based to the extent possible
 - ▶ Addresses gaps in current mental health treatment for Veterans with trauma histories
 - ▶ Structured to facilitate:
 - ▶ Replication studies across multiple sites
 - ▶ Manualization and dissemination to the field if shown to be effective by rigorous studies



Gaps in conventional mental health treatment for veterans with trauma histories

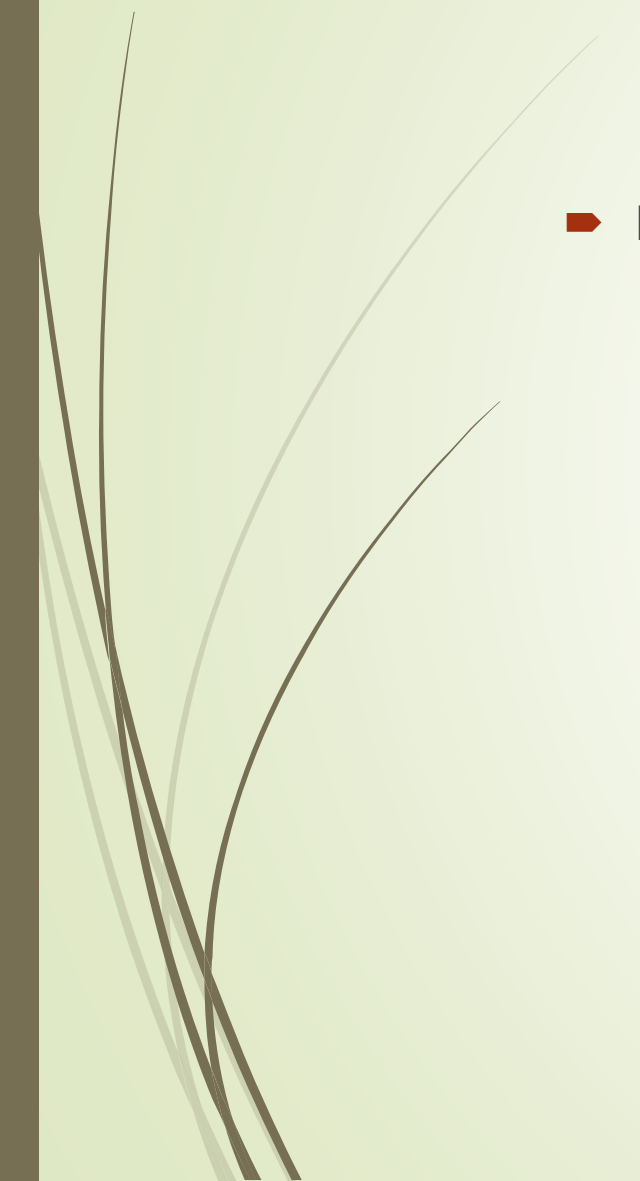
- ▶ Partial or no response to conventional treatments
- ▶ Treatment resistance (lack of seeking and engagement)
- ▶ Lack of specific focus on MST, moral injury, guilt and healthy attachment

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<https://doi.org/10.3390/ijerph20146377>

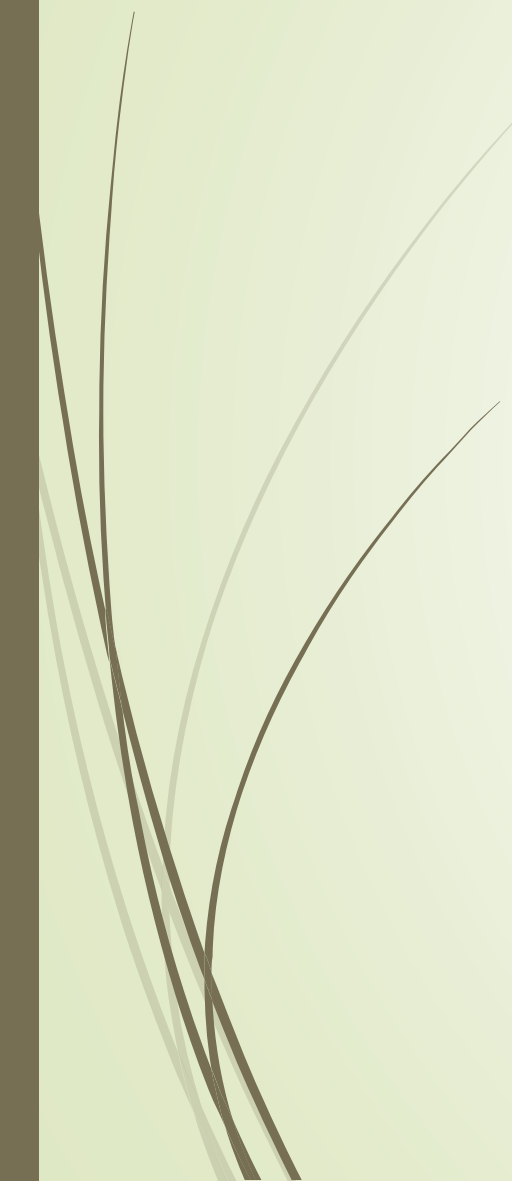


Whispers with horses

- ▶ Program was developed to:
 - ▶ Make mindfulness and self-compassion training accessible to Veterans by delivering it in a fun and casual setting
 - ▶ Provide the opportunity to practice mindfulness and self-compassion in a real-world setting, in an arena with an equine
 - ▶ Facilitate healing from moral injury and trauma related guilt through self-compassion
 - ▶ Enhance healing and recovery through the synergistic effects of mindfulness and self-compassion combined with the benefits of horse-human interactions
 - ▶ Serve as a complementary intervention to be used in conjunction with traditional psychotherapy and psychopharmacology
 - ▶ Ultimately disseminated to the field as a manualized intervention, if shown to be effective by rigorous studies
- 



Whispers with horses

- Six-session intervention
 - Provided in group (90-minute sessions) or individual (60-minute sessions) format
 - Facilitated by one mental health professional and one equine specialist
 - For group therapy – no more than two participants per equine
 - Participants work with the same equine each time (if possible)
 - Strong focus on development of horse-human communication and relationship
- 



Whispers with horses

- ▶ Session structure
 - ▶ All six sessions follow the same general structure
 - ▶ Opening “check-in with the self” mindfulness/self-compassion meditation
 - ▶ Discussion of concepts
 - ▶ Mindfulness and self-compassion
 - ▶ Horse behavior and communication
 - ▶ Arena time with equine
 - ▶ Closing discussion and mindfulness/self-compassion meditation



Initial pilot study - results

- ▶ Participants:
 - ▶ 33 unique Veterans
 - ▶ 17 males and 16 females (52% male)
 - ▶ Mean age of 46 years-old
 - ▶ Most (73%) had PTSD, all had trauma histories
 - ▶ Many had MST, addictive and other psychiatric disorders
 - ▶ 20 were in group and 13 in individual therapy



Initial pilot study - results

- Utilization and treatment engagement:
 - An average of 3.8 sessions were attended
 - Over-half of participants completing 4 or more sessions
 - Eight participants completing all 6 sessions



Initial pilot study - results

- Utilization and treatment engagement:
 - The mean PACES score for all timepoints together indicated that veterans found the intervention to be enjoyable.



Initial pilot study - results

- Significant pre- to post-session changes:
 - There was an increase in psychological flexibility for session one.
 - Positive affect scale scores increased on sessions one and three
 - Scores on the negative affect scale decreased for sessions one and three

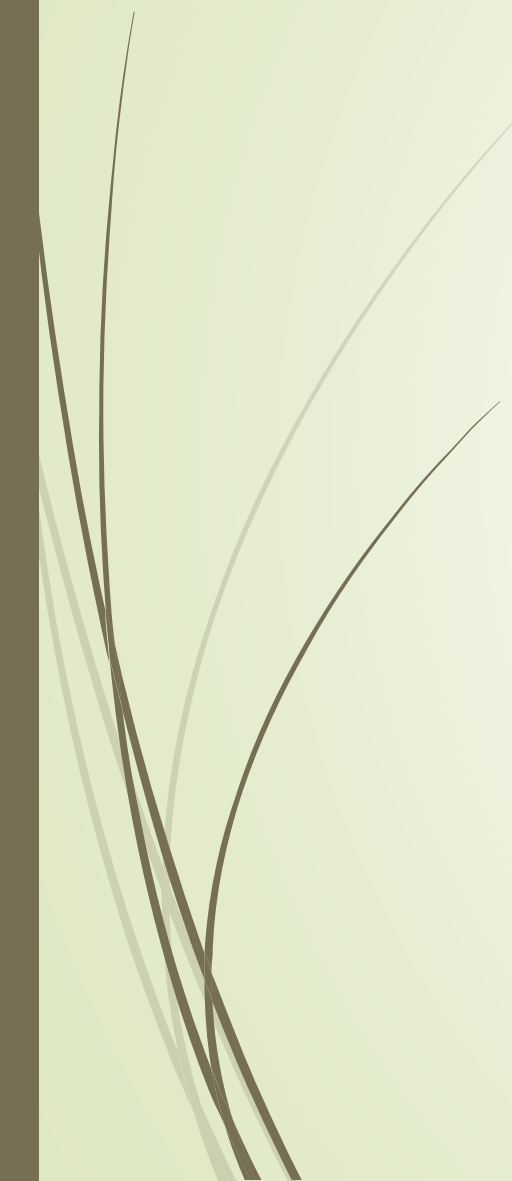


Initial pilot study - results

- Significant pre- to post-intervention changes:
 - Reduction in depression
 - Increase in psychological flexibility
 - No change changes in short-term affect or PTSD




Initial pilot study - limitations

- ▶ The sample size was small
 - ▶ It was an uncontrolled study, therefore, cause and effect relationships were not demonstrated
 - ▶ Selection bias is a concern due to the lack of randomization
- 



Initial pilot study - conclusions

- ▶ The overarching aim of this investigation was achieved, which was to pilot test a novel PIH intervention
 - ▶ Mindfulness and self-compassion training can be successfully incorporated into a PIH intervention
 - ▶ It is feasible and safe to use this intervention for Veterans
 - ▶ The intervention can be utilized as either group or individual therapy
 - ▶ The intervention may result in decreased depression and enhanced psychological flexibility
- 



Next steps

- Continue to refine the basic intervention
- Refine and evaluate more advanced level 2 and 3 interventions
- Incorporate mounted activity in levels 2 and/or 3



Next steps

- fNIRS/HRV study of intervention components **funded by HHRF**
- Collect other physiological data, horse and human HRV, cortisol and possibly oxytocin
- Collect additional utilization data from a larger sample
- Randomized controlled trial

Discussion

- ▶ How can we work together to move the scientific state of the field forward?
 - ▶ EAS for Veterans
 - ▶ the entire field of EAS



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