

TRR's Warrior Camp: An Intensive Treatment Program for Combat Trauma in Active Military and Veterans of All Eras

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ABSTRACT Effective treatments for combat trauma in military service members exist, but barriers to care abound, including poor access, stigma, and dropout. Although the effects of post-traumatic stress disorder (PTSD) can be severe, recovery is possible when proper treatment is implemented. Trauma and Resiliency Resources, Inc.'s Warrior Camp (WC) program is designed to address the effects of combat trauma in military service members and veterans. This intensive, 7-d treatment incorporates eye movement desensitization and reprocessing therapy, equine-assisted psychotherapy, yoga, and narrative writing in context of community. This single-group pretest–posttest design included paired *t*-tests and effect size analyses for 85 participants of WC. Outcome measures included the Mississippi Scale for Combat-related PTSD, the Patient Health Questionnaire, the Revised Adult Attachment Scales, and the Moral Injury Events Scale. Clinician-administered measures included the Davidson Trauma Scale and the Dissociative Experiences Scale. All measures showed statistically significant reductions in distress. The effect sizes ranged from small to large. Results suggest that WC participants experienced significant improvement in PTSD, depression, moral injury, dissociation and adult attachment. Clinicians should consider the potential benefits of this short-term, intensive treatment when addressing combat-related PTSD among military service members and veterans.

INTRODUCTION

Effective treatments for returning service members (RSMs) with post-traumatic stress disorder (PTSD) are available,¹ but barriers to care are significant.² Convenient access to services is limited for many RSMs, including those in the Reserve and National Guard, and stigma and lack of confidence in treatment services prevent many from getting needed help.³ Treatments are needed that (1) incorporate effective treatment components, (2) address the array of adverse experiences related to combat, and (3) have a high capacity to engage RSMs.

The need for innovations for treatment of combat-related symptoms stems from the well-documented fact that significant numbers of RSMs meet criteria for clinical diagnoses such as PTSD,⁴ mild and severe traumatic brain injury,⁵ and substance use disorders.⁶ Additionally, there are effects of combat that do not fit diagnostic categories. These can also be problematic and may include combat and operational stress reactions,⁷ sexual assault,⁸ and relational distress secondary to combat exposure.^{9,10}

The avoidance and numbing cluster of symptoms have particularly negative effects on social relationships. Another reaction to combat that occurs for many RSMs – independent of a PTSD diagnosis – is that of moral injury.^{11,12} Lastly, suicide has been and remains a critical concern for many RSMs.¹³ Treatments are needed to help mitigate against death by suicide among RSMs.

It has been noted that among those RSMs who acknowledge post-deployment mental health problems, only 25–50% actually seek help.^{14,15} Paradoxically, those who report the greatest need for help also tend to report the most significant barriers.² Barriers to getting help appear to include difficulty admitting a problem to oneself (self-stigma), fear of being seen as weak by fellow service members and others (social stigma), fear of negative career repercussions such as security clearance (career concerns), and scheduling and location (logistical barriers).² Attitudinal barriers exist for service members who lack confidence that treatment will work for them and this may underlie high dropout rates from treatment, including even effective treatments.¹⁶ Day-to-day experience working with service members suggests that many RSMs at times refrain from obtaining care at specialized facilities (e.g., VA and military treatment facilities). These individuals note that they are more inclined to seek help where there is a reduced likelihood that others in the military culture may become aware of their help-seeking. One opportunity for treatment providers lies in maintaining a practical awareness that many RSMs will not get care typically due to one or more of the barriers listed above.

A Novel Treatment and Delivery Format

To address the aforementioned difficulties with combat-related PTSD treatment, Trauma and Resiliency Resources, Inc.'s Warrior

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Camp (WC) was developed. WC is a 7-d intensive therapeutic treatment designed to address the effects of combat. It incorporates eye movement desensitization and reprocessing (EMDR) therapy, equine-assisted psychotherapy (EAP), yoga, and narrative writing in the context of community. An integral part of this program is an array of self-report and clinician-administered measures taken at pretest and posttest to assess PTSD, dissociative experiences, moral injury, attachment, and depression.

Eye Movement Desensitization and Reprocessing

EMDR therapy is an established trauma treatment that is approved by the Department of Defense and VA.¹⁷ WC utilizes therapists who are certified in EMDR therapy and has developed a 10-session protocol delivered over 5 d. EMDR therapy sessions are delivered twice each day during WC.

Equine-Assisted Psychotherapy

Equine-assisted interventions were delivered by team members certified by the Equine Assisted Growth and Learning Association (EAGALA). EAP is a non-riding psychotherapeutic approach that utilizes a team consisting of horses, a mental health professional and an equine professional. As prey animals, horses respond immediately to sudden shifts in their environment. Their behavior serves as a metaphor for clients, illuminating their way of connecting to others, solving problems, and other challenges of trauma and moral injury. The goals of EAP are to enhance skills for problem solving, communication, relational attachment, confidence and trust, self-control, setting healthy and safe boundaries, and calming the nervous system – all impacted in the trauma response. To date, limited research has been conducted on equine-assisted psychotherapy with RSMs¹⁸ but available research suggests positive outcomes in small uncontrolled studies.^{19,20}

Yoga

Although yoga is considered to be a complementary and alternative modality, it is becoming increasingly recognized as effective in reducing symptoms of PTSD.^{21,22} Further, an evaluative review²³ revealed that yoga is widely offered in VA-specialized PTSD treatment programs and that patient-centered care models are being created to target the needs of veterans with PTSD. The WC model implements yoga as a core modality every day. Yoga helps RSMs regain balance, both physical and mental, as well as enhancing strength, endurance, discipline, and a sense of purpose.²⁴

Narrative Writing

Narrative writing has been shown to lead to symptom reduction in patients with chronic illness^{25,26} and is effective as a therapeutic intervention for individuals who have experienced traumatic events.^{27,28} Daily narrative writing at WC enables participants to record and reflect upon the insights from the

various treatment modalities and integrate them in their own words so they can be remembered and shared, if desired.

Present Study

This study examined clinical outcomes of WC. Specifically, we assessed the relative changes in PTSD symptoms, depression, moral injury, and relational attachment from pretest to posttest. We hypothesized that the WC would result in decreases in PTSD symptom severity, decreases in dissociative experiences, decreases in depressive symptoms, a decreased sense of moral injury, and improvements in relational attachment. The clinical team collected pretest and posttest data from WC participants. A preliminary analysis used an outcomes-monitoring approach²⁹ to examine the self-report measures using a single-group pretest–posttest design for 85 participants across nine iterations of WC using nine different clinical teams.

METHODS

Participants

WC program participants are recruited through various venues, such as through VA health care facilities, military installations, and online referrals. All participants served in the military and 91.7% reported having been deployed to a combat zone. This sample consisted of 60 males (70.59%) and 25 females (29.4%) and included individuals between ages 22 and 72 yr ($M = 42.94$, $SD = 11.63$). Participants were predominantly White Caucasian (78.8%), followed by Black/African American (9.41%), Hispanic/Latino (3.5%), American Indian/Native American (2.3%), Pacific Islander (2.3%), and Asian (1.2%). Information was also collected regarding any mild traumatic brain injury, substance use, suicidal ideation, and past suicide attempts. Participants consented to have their non-identifying data submitted for analysis. This study proposal was reviewed and approved by the Institutional Review Board at Brigham Young University.

Procedure

All participants in WC were screened by a clinician before admission to assess readiness and eligibility for treatment. During the treatment program, participants resided on site at an equine center for a 7-d intensive therapeutic and experiential program that involves the treatment components described previously. Data were collected before and after treatment.

Measures

PTSD

PTSD symptoms were assessed using the Mississippi Scale for Combat-related PTSD.³⁰ The Mississippi Scale is a self-report measure and consists of 35 items that are scored on a Likert scale from 1 (never true) to 5 (very frequently true). The Mississippi Scale has good reliability and validity.³¹ PTSD was also assessed using the Davidson Trauma Scale. The Davidson Trauma Scale is a 17-item scale. Each item has two 5-point

Likert scales (0–4), one for frequency, and one for severity. This scale is internally consistent ($\alpha = 0.99$).³² Dissociation symptoms were assessed using the Dissociative Experiences Scale (DES). The DES consists of 28 items. Each item has a 0–100% scale, asking how often the each symptom occurs. The DES has been shown to have high internal consistency ($\alpha = 0.95$).³³

Depression

Depressive symptoms were assessed using the Patient Health Questionnaire-9 (PHQ-9).³⁴ The PHQ-9 has 10 items and is internally consistent and reliable ($\alpha = 0.74$) and valid for assessing depression.³⁵

Relational Attachment

In order to assess relational attachment, we used 18 items that were revised from the Adult Attachment Scale.³⁶ In the Revised Adult Attachment Scale (RAAS), the scale instructions were reworded to refer to “close” relationships rather than “romantic” relationships.³⁷ The RAAS yields three different subscales: comfort with emotional closeness, comfort with depending on trusting in others, and anxious concern about being abandoned or unloved. The first two subscales correlate with an avoidance dimension ($r = 0.86$ and $r = 0.79$, respectively),^{38,39} and the scale has shown adequate test-retest reliability and internal consistency ($\alpha = 0.59$).³⁷ Higher scores indicate a presence of greater relational attachment avoidance, whereas lower scores indicate a healthy relational attachment style.

Moral Injury

The Moral Injury Events Scale (MIES)⁴⁰ was used to assess participants' experience of moral injury. The MIES is a self-report scale that measures conflict that is typically associated with traumatic experiences and events as well as the effects of killing in military settings.⁴⁰ The scale consists of 11 items that include statements such as “I saw things that were morally wrong” and “I am troubled by having witnessed others' immoral acts.” The MIES shows good internal consistency

reliability ($\alpha = 0.86$).⁴⁰ Participants responded in terms of their agreement or disagreement on a Likert scale from 1 (strongly agree) to 6 (strongly disagree). Lower scores indicate greater levels of moral injury.

Data Analysis

Paired *t*-tests were used to assess for treatment effects for each of the dependent variables. Effect size statistics were also computed to allow for computation of the relative program effects because effect size measures are less sensitive to sample size. In addition to hypothesis testing, the relative program effects were evaluated with Hedge's *g*, an effect size measure that corrects for biases related to a small sample size.⁴¹ Data were analyzed using Stata (Version 14).

RESULTS

WC participants showed statistically significant pre- and post-treatment differences on all measures ($p < 0.001$), and their effect sizes ranged from small to large (Table I).

DISCUSSION

This outcomes-monitoring examination of Warrior Camp shows that participants experienced statistically significant and substantive improvement for PTSD, depression, attachment problems, moral injury, and dissociative experiences during this brief and intensive treatment. Although this study does not allow us to precisely attribute how much the equine component of this treatment contributed to these effects, we suggest the possibility that the use of equines is important. Specifically, the equine element of treatment may help to establish safety and development of trust, self-esteem, and increased self-efficacy.⁴² The equine–human relationship is often characterized by affection, trust, and acceptance.^{43,44} The development of this relationship and the significant decrease of PTSD symptom severity, depressive symptoms, and moral injury is congruent with multiple research studies which indicate that when animals are part of the therapeutic process, results suggest improvements in the areas of

TABLE I. Differences Between Pretest and Posttest Scores on Outcome Measures.

Outcome Variable	Assessment Period				Analysis	
	Pre-treatment		Post-treatment			
	Mean	SD	Mean	SD	<i>p</i>	Hedge's <i>g</i>
PTSD (Mississippi Scale for PTSD)	110.63	20.96	95.62	21.64	0.000*	0.70
Depression (PHQ-9)	17.66	6.50	11.84	7.34	0.000*	0.84
Adult Attachment (RAAS)	47.65	10.22	43.15	9.88	0.000*	0.45
Moral Injury (Moral Injury Scale)	37.43	12.40	33.60	11.82	0.000*	0.31
Davidson Trauma Scale	80.38	28.54	45.04	29.09	0.000*	1.22
Dissociative Experiences Scale	21.37	14.64	14.75	13.34	0.000*	0.47

Note: Hedge's *g* is an effect size, which is a standardized index of the effects of treatment. An effect size of 0.20 is considered small, 0.50 medium, and 0.80 large.

* $p < 0.001$.

PRESENTATIONS

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loneliness, lack of trust, stress, and depression.^{45,46} These results may suggest that EAP may help address the symptoms of PTSD, depression, attachment problems, moral injury, and dissociative experiences because horses are able to give feedback about participants experience in a way that encourages thoughtful exploration and resolution.

LIMITATIONS

Limitations for this study include the small sample size. Additionally, this study did not include a follow-up analysis, which would have been helpful in assessing the maintenance of the effects of treatment long term. Future research should include a focus on long-term effects of the treatment. Likewise, a more thorough assessment of the participants' demographic information related to how long they have suffered combat trauma-related distress in juxtaposition to the duration of the treatment should be included. This could help to further determine the effectiveness of the treatment program. Additionally, a waitlist control group or other comparison group was not available to assess the relative effects of WC on combat trauma. Such a design would allow for an assessment of efficacy in addition to effectiveness.⁴⁷ It is also unclear how the treatment components – separately or in combination – contributed to the positive outcomes. Future research should assess the relative effects of each component on therapeutic outcome.

CONCLUSION

We propose three implications of this study. First, this study provides a contribution to the literature on clinical approaches for RSMs that incorporate equine-assisted psychotherapy – an area of research that is highly understudied. We hope that this study and others that follow will perpetuate further research in this field, particularly research focused on military veteran populations. Likewise, this study adds a significant contribution to the literature on short-term, intensive treatments for military service members who have been exposed to combat. WC participants often reported past and current suicidal ideation and past suicide attempts, yet participants were not screened out due to these symptoms. Considering this, clinicians should weigh the potential benefits of treatments like WC treatment when addressing combat-related PTSD among veterans, especially when considering short-term, intensive treatments for post-deployment symptoms. Lastly, the treatment model developed by Trauma and Resiliency Resources, Inc.'s Warrior Camp may be a potentially effective treatment service that (1) incorporates evidence-based treatments, (2) addresses the array of adverse experiences related to combat, and (3) has a high capacity to engage RSMs.

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