



Mobile Equine-Assisted Interventions: Evaluating the Impact of Mobile Miniature Horse Interaction on Professional Quality of Life in Helping Professions

Abstract:

Healthcare workers, first responders, and helping professionals face alarming rates of occupational stress, leading to elevated burnout, compassion fatigue, and diminished compassion satisfaction (Cocker & Joss, 2016; Regehr et al., 2021). Traditional equine-assisted interventions (EAI) require off-site travel, creating significant logistical barriers for shift-based professionals (Boyle & Hall, 2023). This study evaluates a mobile EAI model utilizing two miniature horses ("Levi" and "Big Mac") transported directly to workplace sites (Kershaw & Spagnola, 2021; Machová et al., 2020).

Using a randomized waitlist-control design ($N = 120$), participants will undergo a 4-week intervention consisting of weekly 30-minute structured sessions focused on grooming, feeding, tactile petting, and snuggling (Malcom, 2022; Scopa et al., 2019). Primary outcomes include Compassion Satisfaction (CS), Secondary Traumatic Stress/Compassion Fatigue (CF), and Burnout (BO), assessed via the Professional Quality of Life Scale (ProQOL-5; Stamm, 2010) at baseline, post-intervention, and 4-week follow-up, alongside salivary cortisol measures of acute physiological stress (Pendry & Vandagriff, 2019).

We hypothesize that mobile mini-horse interventions will significantly increase CS while reducing CF and BO compared to controls. Adhering to strict equine welfare guidelines (Glenk, 2017), this study aims to validate a low-barrier, ecologically scalable animal-assisted modality tailored for frontline trauma-exposed populations.

Introduction

Frontline helping professionals—including healthcare personnel, emergency medical services, law enforcement, and social workers—operate under conditions of chronic psychological stress and indirect trauma exposure (Regehr et al., 2021). Over time, unmitigated exposure to these demands depletes personal psychological capital, resulting in a dual crisis of occupational distress: escalating burnout and secondary traumatic stress, coupled with a steady decline in compassion satisfaction (Cocker & Joss, 2016; Stamm, 2010). The consequences extend beyond individual well-being, directly impacting organizational turnover, absenteeism, and patient or client care quality.

While traditional workplace wellness initiatives (such as Employee Assistance Programs or mindfulness workshops) provide valuable resources, engagement remains low among shift-working professionals due to time constraints and cognitive fatigue (Boyle & Hall, 2023). Animal-assisted interventions (AAls) have emerged as highly effective, low-burden modalities for acute stress reduction (Pendry & Vandagriff, 2019). However, standard equine-assisted interventions (EAIs)—which rely on prey-animal co-regulation and non-verbal feedback (Malcom, 2022)—typically require participants to travel to remote farm facilities, posing a barrier to the personnel who need them most (Boyle & Hall, 2023).

This study addresses this ecological gap by evaluating an innovative, portable EAI model. By transporting two registered miniature therapy horses, "Levi" and "Big Mac," directly to healthcare facilities, fire stations, and community agency yards, this intervention delivers non-judgmental, somatic stress regulation within the workplace environment (Kershaw & Spagnola, 2021; Machová et al., 2020).

Purpose of the Study

The primary purpose of this applied randomized waitlist-control trial ($N = 120$) is to test the efficacy of a 4-week mobile miniature horse intervention on professional quality of life indicators (Compassion Satisfaction, Burnout, and Secondary Traumatic Stress) and acute biological stress markers (salivary cortisol) among frontline helping professionals.

Significance & Innovation

1. **Ecological Accessibility:** Eliminates travel barriers by integrating human-animal co-regulation directly into workplace shift schedules (Boyle & Hall, 2023).
2. **Biopsychosocial Outcome Mapping:** Combines psychometric survey data (ProQOL-5) with objective physiological measures (salivary cortisol) to capture both psychological perception and hypothalamic-pituitary-adrenal (HPA) axis down-regulation (Pendry & Vandagriff, 2019; Stamm, 2010).

3. **Equine-Assisted Scalability:** Validates the efficacy of miniature equines ("Levi" and "Big Mac"), expanding access to equine-assisted co-regulation outside traditional rural stable environments (Machová et al., 2020).

Literature Review

Occupational Distress in High-Stress Professions

Healthcare providers, first responders, and social services personnel experience chronic workplace trauma, high workload density, and emotional labour (Regehr et al., 2021). These ongoing demands precipitate two distinct phenomena defined within Stammer's Professional Quality of Life framework: **Compassion Fatigue (CF)**—comprising burnout (BO) and secondary traumatic stress (STS)—and **Compassion Satisfaction (CS)** (Stamm, 2010).

- **Burnout (BO):** Characterized by emotional exhaustion, depersonalization, and reduced personal accomplishment resulting from chronic exposure to stressful workplace conditions (Cocker & Joss, 2016; Stamm, 2010).
- **Secondary Traumatic Stress (STS):** Driven by vicarious exposure to client trauma, mimicking PTSD symptoms such as hypervigilance and intrusive thoughts (Cocker & Joss, 2016).
- **Compassion Satisfaction (CS):** Serves as a critical psychological buffer; when CS declines, intention to leave the field and overall psychological distress rise significantly among frontline personnel (Cocker & Joss, 2016; Stamm, 2010).

Animal-Assisted Interventions (AAI) & The Equine Advantage

Animal-Assisted Interventions (AAI) leverage the human-animal bond to activate autonomic nervous system regulation. Interacting with animals triggers oxytocin release, lowers blood pressure, and significantly reduces salivary cortisol concentrations under acute stress (Pendry & Vandagriff, 2019). While canine-assisted interventions dominate workplace wellness programs, Equine-Assisted Interventions (EAI) offer distinct therapeutic advantages:

1. **Heightened Non-Verbal Feedback:** Equines are prey animals exceptionally tuned to human micro-gestures and somatic tension. They mirror human autonomic states, offering immediate, non-judgmental feedback that enhances self-awareness and co-regulation (Malcom, 2022; Scopa et al., 2019).
2. **Tactile & Somatic Engagement:** Grooming, feeding, and physical connection (snuggling) foster heart rate variability synchronization between humans and equines (Scopa et al., 2019). These

rhythmic motor movements pull participants out of hypervigilant mental states and ground them in the present moment (Malcom, 2022).

The Innovation of Mobile Miniature Horses

Standard EAI programs typically require participants to travel to an off-site ranch or farm. For shift-working nurses, paramedics, and emergency personnel, logistical barriers—such as travel time, shift schedules, and energy depletion—make facility-based EAI largely inaccessible (Boyle & Hall, 2023). Miniature horses provide identical emotional mirroring and tactile benefits to full-sized equines, but their compact size enables safe transport to hospital yards, fire stations, or community mental health clinics (Kershaw & Spagnola, 2021; Machová et al., 2020). Bringing equines directly to the workplace significantly lowers participation friction while delivering acute stress-relief interventions within high-stress environments (Boyle & Hall, 2023; Kershaw & Spagnola, 2021). Furthermore, strict adherence to standardized workload limits and stress-signal monitoring ensures equine welfare is protected during mobile deployments (Glenk, 2017).

Research Questions & Hypotheses

Research Question 1 (Psychometric — Compassion Satisfaction)

- **RQ1:** Does participation in a 4-week mobile miniature horse intervention ("Levi" and "Big Mac") significantly increase levels of Compassion Satisfaction among healthcare workers, first responders, and helping professionals compared to a waitlist-control group across baseline (T_0), post-intervention (T_1), and a 4-week follow-up (T_2)?
 - H_{10} (**Null Hypothesis**): There is no significant difference in mean Compassion Satisfaction (CS) subscale scores on the ProQOL-5 between the intervention group and the waitlist-control group over time (T_0, T_1, T_2).
 - H_{1A} (**Alternative/Directional Hypothesis**): Participants in the mobile miniature horse intervention group will demonstrate statistically significant increases in mean Compassion Satisfaction (CS) scores at post-intervention (T_1) and 4-week follow-up (T_2) compared to the waitlist-control group, as evidenced by a significant Group $\times$ Time interaction effect on the ProQOL-5 CS subscale ($p < .05$).

Research Question 2 (Psychometric — Compassion Fatigue & Burnout)

- **RQ2:** Does participation in a 4-week mobile miniature horse intervention significantly reduce levels of occupational distress—specifically Burnout and Secondary Traumatic Stress—among frontline helping professionals compared to a waitlist-control group across baseline (T_0), post-intervention (T_1), and a 4-week follow-up (T_2)?

- H_{20} (**Null Hypothesis**): There are no significant differences in mean Burnout (BO) or Secondary Traumatic Stress (STS) subscale scores on the ProQOL-5 between the intervention group and the waitlist-control group over time (T_0, T_1, T_2).
- H_{2A} (**Alternative/Directional Hypothesis**): Participants in the mobile miniature horse intervention group will demonstrate statistically significant reductions in both Burnout (BO) and Secondary Traumatic Stress (STS) scores at post-intervention (T_1) and 4-week follow-up (T_2) compared to the waitlist-control group, as evidenced by significant Group $\times$ Time interaction effects on the ProQOL-5 BO and STS subscales ($p < .05$).

Research Question 3 (Physiological — Acute Stress Regulation)

- **RQ3:** Does a 30-minute interactive session with miniature therapy horses produce immediate physiological down-regulation of the hypothalamic-pituitary-adrenal (HPA) axis in trauma-exposed workers, as measured by pre-to-post-session salivary cortisol concentrations?
 - H_{30} (**Null Hypothesis**): There is no significant change in salivary cortisol concentrations ($\mu\text{g/dL}$) measured 5 minutes prior to and 15 minutes following a 30-minute miniature horse interaction session ($T_{\text{pre}} = T_{\text{post}}$).
 - H_{3A} (**Alternative/Directional Hypothesis**): Participants will exhibit a statistically significant decrease in salivary cortisol concentrations 15 minutes post-session compared to baseline pre-session levels ($T_{\text{post}} < T_{\text{pre}}$) during both Session 1 and Session 4, indicating acute physiological stress attenuation following interaction with Levi and Big Mac.