

The Effects of Equine Assisted Activities and Therapy on the Attachment Style of Women Who Have Experienced Domestic Violence

REVIEW OF LITERATURE:

Equine therapy, in a general sense, is when horses are used to help heal people physically and/or emotionally (Kendall et al., 2014). This type of therapy is very different compared to conventional therapy because it is used in unique environments, such as a barn or an arena; it is interactive, involving the horse as well as the patient; and there is an aspect of nonverbal communication between the horse and the patient that would not be able to be achieved in conventional therapy (Jordhøy, 2014). The physical benefits shown through this type of therapy have received some validation through research, as well as extensive anecdotal support since the 1960's (Carriker, 2013). Recently, however, various types of equine-assisted activities and therapies (EAAT) have been developed, using horses for psychological benefits (Jordhøy, 2014).

There are three major forms of equine therapy: equine assisted/facilitated psychotherapy (EAP/EFP), equine assisted/facilitated learning (EAL/EFL), and hippotherapy (Jordhøy, 2014). EAP involves the psychological aspect of equine therapy in which patients are challenged to complete tasks and learn to apply them to their own lives (Jordhøy, 2014). Metaphors are a key aspect to EAP because they can be used to raise the awareness of a patient to situations occurring within their life (Jayne Beebe, 2008). In addition, the unique setting facilitates the patient's ability to stimulate his or her awareness and senses while building a relationship with their therapeutic team (Jayne Beebe, 2008). The second form of equine therapy is equine assisted/facilitated learning (EAL/EFL). In this type of therapy, the participants interact with the environment, each other, and the animals in activities chosen by their instructors that promote specific learning skills (Jordhøy, 2014). In addition, they are able to be with the horses while practicing other skills and setting goals for each session, such as creating a goal of increasing knowledge (Jordhøy, 2014). The final type of equine therapy is hippotherapy, which is geared towards promoting physical health (Jordhøy, 2014). The Professional Association of Therapeutic Horsemanship (PATH) International in 2015 defines hippotherapy as the "use of the movement of the horse as a treatment strategy by physical therapists, occupational therapists and speech/language pathologists to address impairments, functional limitations and disabilities in patients with neuromotor and sensory dysfunction." The rhythm and feel of the horse's stride is used to benefit physical aspects of the human body (Dawson, 2014). Overall, these forms of therapy have shown to benefit people in a variety of ways (Balluerka et al., 2014) (Borges, 2011) (Klontz et al., 2007).

Most research involving EAAT has examined the impacts of riding the horses, but unmounted activities have the potential to be of therapeutic benefit as well (Kendall et al., 2014). For example, a study was done by DeZutti in 2013 in which girls with eating disorders individually completed tasks, such as hand-walking a horse over a set of obstacles. The results showed how the tasks given to the girls enhanced their skills to think outside the box, and increased their self-esteem and communication skills. In addition, cited by Koch in 2008, Sanders found reduced heart rates in participants who groomed and petted a horse (2003). In a study done by Shultz et al. in 2007, EAAT (unmounted) was applied to children who had endured traumatic experiences, such as inter-parental violence, had a history of abuse or neglect, or had a parent with a history of substance abuse. They performed several tasks, such as grooming and walking the horses. The Global Assessment Functioning (GAF) scale was used to assess treatment and measure the psychological, social, and educational functioning for the children (Cantin et al., 2011). All of the children showed improvement in their GAF scores and specifically, children who had a history of physical abuse and neglect, showed a statistically significant greater percentage improvement in scores after treatment than those who did not have a history of abuse and neglect (Shultz et al., 2007). Veterans with post-traumatic stress disorder (PTSD) have also shown positive outcomes from EAAT, such as an increase in concentration and self-awareness, improved sense of well-being and normalcy, and the instillation of patience and self-control (Martz, 2014). This therapy is favorable for veterans because many do not want conventional therapy, and being in a unique environment helps them process their feelings and emotions in a different way (EAGALA,

2011). This shows the underlying impact of EAAT, and how it can benefit other groups of people, such as women who have endured domestic abuse, with similar symptoms.

Attachment theory denotes the idea that what a child experiences in their early life will lay the foundation for their development of personality throughout their life, and becoming attached to a caregiver is a basic necessity for infants (Rockett et al., 2014). A plethora of literature exists that supports the idea that attachment theory can be applied to animal interactions in which humans are able to form strong bonds with animals, such as horses (Rockett et al., 2014). Adult-attachment theory has developed through research and now has the potential to be applied to human-animal attachment. At first, the concept of attachment by Bowlby in 1982 was used to conceptualize child-parent relationships (Zilcha-Mano et al., 2011). Now, scholars have found that attachment theory can be applied to adolescent and adult relationships that fulfill four criteria: (a) preferring to be near attachment figure, especially in times of distress; (b) using the attachment figure as a safe haven from distress to provide comfort and joy; (c) using the attachment figure as a secure base to promote safety and security; and (d) experiencing separation distress when the attachment figure is not present (Zilcha-Mano et al., 2011). As part of attachment theory, individuals vary along two independent dimensions: attachment anxiety and attachment avoidance (Brooks et al., 2011). Individuals who have low levels of both dimensions are considered secure, and individuals with high levels of one or both dimensions are considered insecure (Brooks et al., 2011). Although romantic partners have often become principal attachment figures for adults, there may also be other attachment figures that have the potential to be sources of comfort and support in specific environments, such as therapists in therapeutic settings (Zilcha-Mano et al., 2011). This directly relates to how horses can act as therapists in a therapeutic environment.

Women who have endured domestic abuse have the potential to receive positive outcomes from EAAT. Domestic abuse relates to violence by partners or ex-partners and can include physical, sexual, and emotional abuse (Crawford et al., 2009). It is hard to establish precise figures on the number of women who experience domestic abuse due to underreporting, but estimates state that between 18 and 30% of women experience domestic abuse during their lifetime (Crawford et al., 2009). Low self-esteem, shame, dependency, and the inability to speak freely are some common factors that become a major part of battered women's lives (Crawford et al., 2009). Additional symptoms include depression, anxiety, and higher levels of psychological distress that could potentially lead to the development of PTSD (Levendosky, 2001). Other studies using EAAT, such as the one completed by DeZutti in 2013 or the study that incorporated a veteran, show how the positive benefits, like increased self-esteem and trust, can be essential to the recovery of women who have endured domestic violence.

The present study examines the impact of EAAT on women who have experienced domestic violence as well as "normal" healthy women and their attachment styles. This allows for the comparison between two different groups, as well as analysis of the differences in impact of attachment style of the women. This study is unique, because of the unmounted work done with the horses as well as the short, one-time intervention each participant completes. The informal nature of these sessions is an unexplored area of research, and positive results would yield the possibility of creating a more cost-effective manner of participating in EAAT.

RESEARCH QUESTIONS AND HYPOTHESES:

RQ₁: How does the baseline attachment style of women affect their final attachment style in working with horses?

H₁: After completing the intervention, all of the women will report a positive effect on anxiety and avoidance, thus moving towards greater attachment security.

H₀: The anxiety and avoidance scores of the participants will not be impacted by the intervention.

RQ₂: How does proximity maintenance, a facet of attachment, differ between the two groups of women and the horse?

H₂: Video footage of the intervention will indicate that compared to women who have not experienced domestic abuse, those who have experienced abuse and are deemed insecuring will likely spend greater time in proximity to the horse.

H₀: Proximity maintenance will have no difference between the two groups of women and the horse.

METHODS:

Description of Participants

Human Participants

The women who had experienced domestic violence were recruited from the University of Maine through First Class emails and posters as well as through the distribution of fliers to local domestic abuse support groups. Recruitment also came from local therapists' offices with an incentive of a \$20 gas card and a t-shirt. The experimental group consisted of four females between the ages of 18 and 30. One additional participant, however, was outside the age range (45 years old).

Recruitment of women outside the experimental group was done solely on the University of Maine campus using First Class and a variation of the experimental recruitment poster with a t-shirt offered as an incentive as well. This recruitment resulted in 18 females between the ages of 18 and 30, of whom four were matched with the experimental population on level of experience with horses, followed by similarity of age. An application explaining this study was presented to and approved by the Institutional Review Board (IRB) before beginning recruitment or experimentation.

Animal Participants

The horse used in the study was a retired Standardbred mare named Long Wick (Wicky). After evaluating the resident mares at the J. Franklin Witter Teaching and Research Center in Orono, Maine, Wicky was deemed most suitable based on her behavior. She is seen as the most reliable and patient horses in the barn. In addition, she showed a tendency to respond to each participant differently, as compared to the other mares evaluated that were less effective at connecting with inexperienced and unfamiliar handlers. The Institutional Animal Care and Use Committee (IACUC) received an application explaining this project and approved it prior to beginning research.

Study Design

Attachment

The revised edition of the Experiences in Close Relationship Scale (ECR-R) was used to assess adult attachment based on two-dimensions: attachment-related anxiety and attachment-related avoidance (Fraley, 2012). The entire questionnaire is comprised of 36 questions of which 1-18 measure anxiety, and 19-36 measure avoidance. To analyze the scale, the responses to the first half are averaged, with exceptions for items 9 and 11 that must be reverse keyed, to yield a score of anxiety. The responses to the second half of the questions are averaged after reverse keying items 20, 22, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36 to yield a score of avoidance. A higher score indicates a higher level of anxiety or avoidance. A lower score indicates that the individual is moving towards a more secure attachment style. These two dimensions are intended to remain continuous variables, however security can be loosely assessed by an anxiety score that is less than the median score for anxiety (MANX) and an avoidance score that is less than the median score for avoidance (MAVOID) (Fraley, 2012).

Baseline Assessment

Each potential participant required informed consent prior to completing a questionnaire to determine if the subject was qualified. Qualifications for both groups included lack of experience with horses (five or fewer times in contact) and never having participated in EAAT. For the experimental group, the subjects were required to have self-reported current or past history of domestic violence and/or sexual abuse. Subjects who self-reported animal abuse concerns, medical or mental health concerns beyond a minimal level, a history of fire setting, or other issues preventing interaction with horses were declined and provided with a list of local counseling resources.

Those who qualified for the study were distributed a second informed consent that explained the experiment before completing a participant information sheet and the ECR-R Scale questionnaire for the first of three times. They were also provided with a list of counseling services before leaving.

Experimental Setting

The J. Franklin Witter Teaching and Research Center is where the participants completed their sessions. One videographer, a horse handler, and another videographer/instructor were required per participant.

Activities

The participants were asked to complete several tasks with Wicky. The overall procedure included the initial meeting, grooming, leading, and the final goodbye. During the initial meeting, the participant met Wicky through a window in her stall. They were allowed to be with him as long as they wanted. In the grooming phase, the horse was brought out to the cross ties by the horse handler, and the participant was given a brush to groom Wicky. The

participant was able to groom the horse as long as they chose to. After the grooming phase, the participant had to lead the horse with a lead rope, while the horse handler was loosely handling an attached lunge line. The horse was lead into the arena, walked around, and then lead back to the stall. For the final goodbye, the window in the stall was reopened and the participant was allowed to say goodbye for as long as they wanted.

Questionnaire Administration

The ECR-R Scale was administered three times during this study:

- Baseline assessment
- Upon entering Witter Farm (prior to experimentation)
- Immediately after session with horse (post-experimentation)

Video Coding

During the informed consent process, participants were asked whether or not they gave permission to be videoed during their sessions. After recording the sessions, the videos were then quantitatively analyzed through separately rating the length of time (in seconds) the participant (P) engaged with the horse (H), H engaged with P, and both P and H simultaneously engaging with each other. This was observed during the meeting and goodbye phases of the study (Silver, 2016). Interaction between P and H was assessed as follows, requiring the expression of at least one behavior at a time:

Meeting/Goodbye (seconds)	P Engagement (seconds)	H Engagement (seconds)	Overlapping Engagement (seconds)
Length of meeting/goodbye	-Head turned towards H -Eyes facing H -Arm outstretched/hand on H	-Eyes facing P -Head turned towards P -Ears directed towards P	-Length of time P and H simultaneously engage with one another

Due to confidentiality concerns, one participant from the abuse group could not be viewed. Four matched pairs of videos were analyzed, with the inclusion of the participant outside the age range.

RESULTS:

Hypothesis 1

To investigate whether both groups of women would collectively show a difference in attachment style, based on the dimensions attachment anxiety and attachment avoidance, a paired samples t-test was conducted through SPSS. The six pairs analyzed were comparing differences in anxiety and avoidance based on the three times the participants completed the ECR questionnaire. Table 1 shows the mean and standard deviation of the scores for 22 of the participants (participant 23 excluded) for the different times they completed the ECR questionnaire.

Table 1. Statistics of Average Attachment Dimensions

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Table 2. Statistics of Change in Dimensions at Different Points in Intervention

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Hypothesis 2

Four pairs of participants (N=8) were analyzed based on the video footage. Participants were paired with one another based on similarities in age, horse experience, etc.

First, a paired samples t-test was computed in SPSS that collectively examined all participants, disregarding abuse history or attachment security. As seen in Table 3, there was a significant difference between the average length of meeting and goodbye ($t(7)=2.601$, $p=.035$), with more time spent during the meeting. There was, therefore, a significant difference between the time participants engaged with the horse at meeting and goodbye

($t(7)=2.552$, $p=.038$). In addition, both comparisons of horse engaged during meeting and goodbye were significant ($t(7)=3.166$, $p=.016$ for meeting and $t(7)=3.540$, $p=.009$ for goodbye), because the horse spent significantly less time engaged than the participant. Consequently, there was a significant difference between time spent by the participant engaged at both meeting and goodbye and the overlap ($t(7)=3.196$, $p=.015$ for meeting and $t(7)=3.540$, $p=.009$ for goodbye).

Table 3. Statistics of Difference in Time Lengths of Intervention (All participants)

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		Mean	Std. Deviation	t	Sig. (2-tailed)
Pair 1	MeetingLength-GoodbyeLength	67.04750	72.89972	2.601	.035
Pair 2	MPPTEngaged- GPPT Engaged	66.50750	73.69759	2.552	.038
Pair 3	MHEngaged-GHEndaged	13.87500	21.37714	1.836	.109
Pair 4	MOverlap-GOverlap	12.25000	19.42568	1.784	.118
Pair 5	MPPTEngaged-MHEngaged	83.63250	74.70865	3.166	.016
Pair 6	GPPTEngaged-GHEngaged	31.00000	24.76893	3.540	.009
Pair 7	MPPTEngaged-MOverlap	85.25750	75.45208	3.196	.015
Pair 8	MHEngaged-MOverlap	1.62500	4.59619	1.000	.351
Pair 9	GPPTEngaged-GOverlap	31.00000	24.76893	3.540	.009

Table 4. Statistics of Difference in Time Lengths of Intervention (Insecurish)

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Lastly, a paired samples t-test was computed in which the group was split into those who experienced domestic abuse and those who had not ($N=4$ for each group). As seen in Table 5, nothing was found significant for those who had not experienced domestic violence. The exact same pattern for the insecurish group, however, was seen in those who experienced domestic abuse. The insecurish group had significance in Pairs 5, 6, 7, and 9 and significance was found in the same pairs for women who have experienced domestic violence (Insecurish: $t(5)=2.792$, $p=.038$; $t(5)=3.268$, $p=.022$; $t(5)=2.835$, $p=.036$; $t(5)=3.268$, $p=.022$) (Experienced Domestic Abuse: $t(3)=3.068$, $p=.055$; $t(3)=3.231$, $p=.048$; $t(3)=3.171$, $p=.050$; $t(3)=3.231$, $p=.048$).

Table 5. Statistics of Difference in Time Lengths of Intervention (Experienced Domestic Abuse)

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DISCUSSION:

The key finding of this research is that after separating eight participants into two groups in two separate paired t-tests (securish vs. insecurish and matched vs. experimental) the insecurish group and those who experienced domestic abuse showed paralleled significance. Specifically, significance was found in the difference between P engaging with H (meeting) and H engaging with P (meeting) (Pair 5), and the same for the goodbye interaction (Pair 6). In addition, during the meeting and greeting interactions, P engaged with H minus the overlap of engagement was significant (Pairs 7 and 9). In EAAT, horses are known to act certain ways depending on the person interacting with them (Hausberger, 2014). This finding shows that Wicky, the horse working with the women, displayed a difference in how she related to those people who were classified as insecurish and those who reported having experienced domestic violence, suggesting that the horse responds differently to people's differing characteristics. The results also suggest that people with different levels of attachment security or those who have endured domestic violence interact differently with a non-human animal. Jordhøy explains that as

compared to conventional talking therapy, being in a unique environment allows participants to process their feelings and emotions in a different way (2014). In general, results confirmed that participants who have an experience of domestic abuse or were categorized as insecurish tended to spend more time engaging with the horse, which is something to be further examined.

This research also observed the changes in attachment style of both groups of women collectively. Counter to Hypothesis 1, there were generally no significant changes found based on differences in anxiety/avoidance scores at differing points during the intervention. The only exception is the significant decrease in anxiety from T2 to T3. Also, although the difference in anxiety from T1 to T3 was not significant, the average anxiety score for T3 was less than T1, indicating that the participants moved towards greater security

Results from Table 3 suggest that the horse spent significantly less time engaged than the participant. Brandt explains the sensitivity of horses to body language, and how being around an unfamiliar human could dissuade the horse from engaging with the human (2004). Since the participants did not have extensive experience with the horses, there may have been instances in which their unfamiliarity with horses led to Wicky's disinterest in engaging in the interaction. In addition, the results indicate that the horse did not spend much more time engaged at goodbye compared to meeting. This may suggest that the horse had an overall neutral, or indifferent bond to the participants.

Results of the insecurish group (Table 4) show that there is a significant difference between the horse and the participant's time spent engaged. There is also significance in the difference between the participants' time spent engaged and the overlap for both meeting and goodbye. This suggests that the horse spent less time engaged compared to the insecurish participants. This, however, cannot explain general horse behavior, because some horses enjoy interacting with humans more than Wicky does. Although she was the best suited horse for this research, a friendlier or people-loving horse might have interacted much more than Wicky generally did. Further investigation would be necessary to examine horses' engagement in EAAT.

STUDY LIMITATIONS:

The most significant limitation of this research is the sample size. Having only five survivors of domestic abuse inhibited the ability to draw significant conclusions. In addition, one of the survivors of abuse was not able to be videoed and coded, due to confidentiality concerns. Also, the video footage obtained, due to the poor lighting of the barn and the presence of stalls that blocked clear visibility, was not always clear enough to determine if either the horse or human was engaged and for what length of time. A final limitation is the unavailability of suitable horses to work in EAAT. Although Wicky was the most suitable horse at J.F. Witter Farm to be used in the study, she had never been involved in animal therapy beforehand. In addition, she and the participants were subject to be distracted by other occurrences in the barn.

CONCLUSION:

EAAT, over the past decades, has become a legitimate form of rehabilitation. Further research, however, is necessary to create hard evidence of not just the physical, but also the mental impact of equine assisted activities and therapy. Examining the success of EAAT through the lens of attachment, as well as developing a cost-effective manner for this therapy, could be a great contribution to the field of equine therapy. Although there are several limitations to this study, a greater sample size and possibly a longer intervention has the potential to display a significant effect.

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