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Self-Efficacy and Equine Assisted Therapy: A Single Subject Study

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Abstract

Equine Assisted Therapy (EAT) is growing in popularity as an alternative to traditional talk therapy in treating a range of presenting concerns; however, there is little empirical research to support its use. In this study, the author added to the body of empirical literature on EAT's impact on self-efficacy. This study was a single subject A-B-A-B design wherein the subject was a Caucasian 14-year-old girl participating in 8 sessions of EAT at a therapeutic riding center. The New Generalized Self-Efficacy (NGSE) scale was used to measure the subject's perceived generalized self-efficacy. Results showed a significant increase in the subject's NGSE scores over the course of 8 EAT sessions. Clinical implications and the need for further research are discussed.

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SELF-EFFICACY AND EQUINE ASSISTED THERAPY: A SINGLE SUBJECT STUDY

A DISSERTATION

SUBMITTED TO THE FACULTY

OF

SCHOOL OF PROFESSIONAL PSYCHOLOGY

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ABSTRACT

Equine Assisted Therapy (EAT) is growing in popularity as an alternative to traditional talk therapy in treating a range of presenting concerns; however, there is little empirical research to support its use. In this study, the author added to the body of empirical literature on EAT's impact on self-efficacy. This study was a single subject A-B-A-B design wherein the subject was a Caucasian 14-year-old girl participating in 8 sessions of EAT at a therapeutic riding center. The New Generalized Self-Efficacy (NGSE) scale was used to measure the subject's perceived generalized self-efficacy. Results showed a significant increase in the subject's NGSE scores over the course of 8 EAT sessions. Clinical implications and the need for further research are discussed.

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LITERATURE REVIEW

For thousands of years animals have played an important role in human society, both as a source of food and as a source of labor, protection, hunting, and companionship. More recently, animals have been recognized for their therapeutic value. The first recorded use of animals in a therapeutic setting was in 1792 at the York Retreat in England where the patients cared for small animals such as rabbits and poultry for the purpose of learning self-control (Mallon, 1992). Subsequent use of animals in therapeutic settings included the treatment of patients with epilepsy at Bethel, Germany in 1867 and the treatment of veterans at the Pawling Air Force Convalescent Hospital, in the United States, during the 1940's (Mallon, 1992). Boris Levinson, a child psychologist, popularized the therapeutic use of animals in the United States following the publication of several case studies documenting the benefits of employing animals as therapeutic aides during the 1960's and 70's (as cited in Mallon, 1992). Since that time, several studies have been published documenting the benefits of owning animals and using animals in therapy (e.g., Banman, 1995; Conniff, Scarlett, Goodman, & Appel, 2005; Daly & Morton, 2006; Lukina, 1999; Macauley & Gutierrez, 2004; Mallon, 1992; Oliver & McLaughlin, 1995; Reichert, 1998).

The literature on human-animal interaction can be broken into two main categories: animal-assisted activity (AAA) and animal-assisted therapy (AAT). AAA involves the use of animals to enhance quality of life and is delivered in a wide variety of environments (such as schools, hospitals, and nursing homes) by professionals, paraprofessionals, and/or volunteers. In comparison, AAT is an intervention that uses animals to meet specific goals in a treatment plan and is delivered by a health/human service provider in the context of his/her professional practice (Souter & Miller, 2007). Although AAT and AAA are different by definition, in practice they are not clearly differentiated. For example, a mental health therapist may keep a dog in the room

during therapy sessions for its soothing presence but not include the dog directly in his/her treatment plans. The literature on AAA and AAT reflects this lack of clear boundaries and thus it is helpful to combine the two when exploring the potential impact of human-animal interaction. It is also important to note that there is an absence of clear guidelines for incorporating animals into treatment and that an overarching theory of change for AAT has not been determined.

In addition to a lack of differentiation between AAA and AAT and the lack of standardization in AAT, the literature on human-animal interaction has a lack of rigorous, empirically sound research. The majority of AAA/AAT literature consists of case studies and anecdotal reports that do not provide sound, reproducible results and leave studies open to considerable bias. This flaw has been commented upon in AAA/AAT literature reviews for 20 years. For example, Brickel (1986) conducted a literature review of the range and benefits of “Pet-facilitated therapy” (PFT). In the article, the author briefly described the different types of PFT, and provided a review of both the anecdotal and research literature on PFT. Brickel (1986) highlighted several methodological weaknesses in the PFT research; however, he concluded that despite these weaknesses, PFT appears to have benefits.

Six years later, Mallon (1992) completed a review of animal-assisted therapy literature with regard to its use as an intervention with children and adolescents. The author integrated the findings of multiple studies highlighting the benefits of contact with animals and the positive influence of animals in a co-therapist role. However, Mallon (1992) highlighted several gaps in the literature and suggested future areas of research. Specifically, he noted a tendency in the literature to “interpret data defensively and to disregard that which is considered negative or non-supportive of the value of animal facilitated therapy” (p. 63). The author pointed out the need for appropriate research controls, longitudinal studies, more sensitive non-reactive measures, fiscal

accountability and risk management among animal-assisted therapy programs, a definition of therapeutic gain, and more research examining the role of animals in facilitating nurturing behavior in male children.

More recently, Fawcett and Gullone (2001) conducted a literature review of human-animal interaction research. In their review, the authors noted the cultural significance of human-animal interaction over history and in present times. They reviewed the literature on human-animal interaction involving both adults and children and concluded that the majority of the literature is “flawed and unsophisticated” (p. 128), and that most results only involve anecdotal evidence or descriptions instead of empirical evaluations of the outcomes. Echoing previous literature reviews, the authors called for more empirically sound research to determine the benefits of animal-human interaction.

Recent meta-analyses examining the effectiveness of AAT/AAA interventions have also reflected the lack of empirically sound studies. For example, Souter and Miller (2007) conducted a meta-analysis of the AAA/AAT literature to determine animal-assisted interventions’ effectiveness for reducing depressive symptoms. The authors located the studies included in this meta-analysis by searching 18 databases using 21 search terms, searching websites on AAA and AAT, searching university websites, and searching the reference lists of the collected papers. The literature search led to 165 articles and, of these, only 5 met selection criteria. Selection criteria for inclusion in this meta-analysis were: English language, random assignment, inclusion of a control group, exposure to some form of AAA or AAT, use of a self-report measure for depression, and sufficient detail to calculate effect size. The authors chose the standardized mean difference between the treatment and control groups of each study to determine the effect size. The mean effect size found was in the medium range and was statistically significant. The

authors concluded that despite the small number of studies that met inclusion criteria, the results of this meta-analysis supported AAA and AAT as effective interventions for alleviating depression.

Although the AAA/AAT literature has few well-controlled studies, there is some evidence that the results of uncontrolled studies may be as meaningful as those of controlled studies. For example, Nimer and Lundahl (2007) conducted a meta-analysis of the body of AAT literature (excluding AAA studies) with the following objectives: to assess the average effect of AAT, to investigate the stability of this effect, and to evaluate if variation in implementation of or participants in AAT influence outcomes. The authors identified 250 abstracts through computer searches of 11 online databases using 19 key words associated with AAT, hand searches on three journals that tended to publish AAT articles from the years 1973-2004, and searches through all of the reference sections of retrieved articles. From the 250 abstracts, 119 studies met inclusion criteria (i.e., reported on AAT, written in English, included a minimum of five participants, and provided sufficient data to compute an effect size) and were coded for effect sizes and moderator variables. Of these, 37 articles in peer-reviewed sources and 12 dissertations met eligibility criteria and were included. The results of the meta-analysis were high range effect sizes for autistic spectrum disorders, moderate range effect sizes for behavioral and medical indicators, and low to moderate range effect sizes for emotional well-being indicators (i.e., depression, anxiety, and fear). Studies that used control groups did not significantly differ from those that did not across medical, well-being, and behavioral outcomes, suggesting results from uncontrolled studies were representative of the effectiveness of AAT. Four studies compared AAT with traditional interventions and found AAT was as effective as or more

effective than other interventions. The authors concluded the results of their meta-analysis supported the use of AAT.

The benefits of owning an animal and including an animal in therapy are obvious to animal-lovers worldwide. The enthusiasm of AAA/AAT researchers for human-animal interaction has been demonstrated in many subjective reports and case studies and likely contributed to the lack of strict research protocol in the AAA/AAT literature. However, the small number of well-controlled studies in the AAA/AAT literature supports human-animal interaction as an effective intervention for individuals with a wide range of disorders. More empirically sound research is needed to determine which populations benefit most from AAA/AAT, what specific AAA/AAT interventions are most effective, and what different types of animals bring to AAA/AAT interventions. For the purposes of this paper, the author will focus on the child and adolescent population and the use of horses in AAA/AAT interventions, both of which warrant further investigation due to a lack of empirically sound research.

Animals and Children and Adolescents

Contact with animals is commonly said to be beneficial for children by researchers and clinicians (Mallon, 1992; Oliver & McLaughlin, 1995). Research has shown that simply owning a pet can be beneficial for children and adolescents. Research supported benefits of owning a pet include increases in empathy, pro-social skills, and attachment. However, these benefits were dependent on the children's age, gender, the type of pet, their level of attachment to the pet, and their parental status. For example, girls were found to have a higher level of attachment to pets than boys which was associated with higher levels of empathy and positive attitude (Daly & Morton, 2006). Similarly, Vidovic, Stetic, and Bratko (1999) found that children who scored higher than average on the attachment to pets scale showed significantly higher scores on the

empathy and prosocial orientation scales than non-owners and lower attachment children. In addition, Poresky (1997) found that boys with dogs and girls with cats had higher self-concept scores and girls with dogs and boys with cats had lower self-concept scores as adults. Finally, children in single-parent families were found to have significantly higher levels of attachment to dogs than children in 2-parent families (Bodsworth & Coleman, 2001).

Other studies have produced conflicting results. For instance, although it has been suggested that owning a pet may increase self-esteem (Conniff et al., 2005), Arambasic, Kuterovac-Jagodic, and Vidovid (1999) found it did not. Finally, only some of the significant findings of pet ownership with children have been found to be long-term (Paul & Serpell, 1996). Pet ownership research contributes to the notion that animal interaction is beneficial for children, dependent on the type of interaction and demographics of the child. The research regarding pet ownership is sparse and a number of the research studies have empirical weaknesses; thus, further research on the benefits of interaction with animals is needed.

AAA/AAT with Children and Adolescents

Similar to the pet ownership literature, the research regarding the use of AAA/AAT interventions with the child and adolescent population is in need of further empirical investigation. However, the majority of the available exploratory research suggests AAA/AAT with children may be beneficial. According to a literature review by Mallon (1992), researchers have reported that common benefits children obtain from contact with animals include: companionship, affection, communication, humor, support, and anxiety relief. In the same review, Mallon (1992) suggested animals used in therapy prepare children for later life experiences (sexual behavior, love, parenting, birth, and death), serve as attachment figures, speed up the therapeutic process, facilitate the relationship between child and therapist, and serve

as a socializing agent. Therapy pets have been suggested to be beneficial for children with special needs including those who are mentally retarded, deaf and hard of hearing, speech impaired, autistic, visually impaired, seriously emotionally disturbed, orthopedically impaired, and multi-handicapped (Oliver & McLaughlin, 1995). Proposed benefits of animal interaction for these children include: increased socialization, increased attention and language skills, provision of safety and greater independence, improved behavioral control, and improved motor coordination. Although these research findings appear promising, the majority of the research studies reviewed by Mallon (1992) and Oliver and McLaughlin (1995) were not experimental studies designed to test a specific hypothesis, but were instead exploratory studies designed to generate hypotheses. Therefore, the majority of the AAA/AAT research thus far cannot demonstrate causality but instead has served to provide testable hypotheses for future well-controlled empirical research. Further empirical research is needed to support the existence of positive effects resulting from using an animal as a therapeutic agent.

Qualitative Research of AAA/AAT with Children and Adolescents

As mentioned earlier, the majority of AAA/AAT research studies with both adults and children have relied heavily on anecdotal evidence and observations, leaving the results open to considerable bias. For example, Banman (1995) conducted an observational study involving AAT with children in a psychiatric facility. Based on her observations of the children holding, petting, cuddling, and talking to the animals frequently, the author concluded that AAT is physically, emotionally, and spiritually beneficial for children in psychiatric settings. Again based solely on these observations, the author went on to argue that AAT is physically, emotionally, and spiritually beneficial for people of all ages. Another enthusiastic AAT proponent, Reichert (1998), used his personal experiences as a counselor at Project Against

Sexual Abuse of Appalachian Children to support the use of animal-assisted therapy in individual counseling for sexually abused children. Based on his personal experiences, Reichart (1998) concluded that using an animal in individual therapy serves as a bridge between a counselor and a sexually abused child by lowering the child's anxiety, helping the child to disclose abuse, and helping the child to express feelings. These studies represent a major flaw in the AAA/AAT literature wherein enthusiasm of the researchers and the lack of scientific rigor discredit the findings by leaving them open to considerable bias and overgeneralization.

Unlike those mentioned above, studies using parent and child reports may be relied upon as they have greater scientific rigor and limit researcher bias. Such studies suggest that AAA/AAT leads to increased social skills, behavior compliance, empathy, and self-esteem. For example, Anderson and Olson (2006) studied children with behavioral problems who were placed in a special education classroom with a therapy dog. Qualitative summaries for each child participant were analyzed including both the child's and the parents' thoughts about, and behaviors toward, the dog. Based on this qualitative data, the authors concluded that having a dog placed in a special education classroom had a positive emotional effect on children with behavioral problems and provided each participant with lessons in respect, responsibility, and empathy. In another qualitative study, Zasloff, Hart, and Weiss (2003) examined the effects of a 3-week dog-training violence prevention program on boys and girls aged 11 to 13 years. In open-ended interviews the participants reported an increase in confidence, self-esteem, interpersonal skills, conflict management, and attitude toward adults and peers. Based on these reports, the authors concluded that learning and implementing the skills of training a dog instills an increased sense of mastery, self-esteem, and empathy for living things. These studies offer important information regarding AAA/AAT participants' experiences. However, these studies do not

provide evidence that AAA/AAT is as effective or more effective than other treatments and give no proof of statistically significant change.

The qualitative research indicates that there are many possible benefits of AAA/AAT with children. Although these reports appear promising, further empirical research is needed to support the existence of positive effects of AAA/AAT with children and adolescents.

Empirical Research of AAA/AAT with Children and Adolescents

Although more empirical studies have been repeatedly called for, the empirical research in the area of AAA/AAT with children is limited as demonstrated by the clear lack of well-controlled studies in recent meta-analyses. However, the empirical studies conducted thus far indicate that AAA/AAT has benefits for children in a number of areas including behavior (e.g., self-control, attentiveness), speech and communication, mood and anger symptoms, anxiety, social skills, and self-efficacy. The research in these areas is discussed below.

Researchers have found significant changes in child behavior as a result of being involved in AAA/AAT, including: increased self-control, attentiveness, and purposeful behavior. For example, Lukina (1999) reported that, following a dolphin-assisted therapy program wherein children interacted with a dolphin in the water, the child participants showed an increase in self-control, attentiveness, and purposeful behavior as reported via a parent questionnaire. In another study using dolphins, Nathanson and de Faria (1993) reported that children with mental retardation had a higher motivation to complete learning trials when they interacted with a dolphin in the water versus playing solely with water toys. In a study utilizing horses, Macauley and Gutierrez (2004) found that following a 6-week hippotherapy program (i.e., physical, occupational, or speech therapy utilizing the multidimensional movement of a horse), parents reported their children showed an increase in motivation to attend and actively participate in

therapy. In a study using dogs, Limond, Bradshaw, and Cormack (1997) reported that following a 6-week AAT program, children with Down Syndrome showed significantly different behaviors when they were in the presence of a real dog versus an imitation dog. These behaviors included increased attentiveness to the animal and therapist and decreased distractibility. Taken together, there appears to be empirical evidence that AAA/AAT programs have a significant effect on child behaviors, including self-control, attentiveness, and purposeful/motivated behavior.

Researchers have also found significant differences in speech and communication behaviors for children involved in AAA/AAT. For example, Limond et al. (1997) reported that following a 6-week AAT program, children with Down Syndrome were significantly more verbally and non-verbally responsive to the therapist when they were in the presence of a real dog versus an imitation dog. In a similar study, Martin and Farnum (2002) found that children with Pervasive Development Disorders were more likely to communicate with a live dog and engage the therapist in discussions than they were in the presence of a stuffed dog. In a study using dolphins, Nathanson and de Faria (1993) reported that children with mental retardation had a higher verbal response rate to learning trials when they interacted with a dolphin in the water versus playing in the water solely with toys. In a later study, Nathanson (1998) examined the long-term effectiveness of a dolphin-assisted therapy program on speech and communication. The author reported that participants showed improvements in their performance in speech therapy and in their ability to make social greetings 2-3 years following participation in the program. In a more recent study, Sams, Fortney, and Willenbring (2006) reported that children with autism engaged in significantly greater language use in animal assisted occupational therapy sessions versus traditional occupational therapy sessions. The combined findings of this

empirical research suggest that significant changes in speech and communication behavior can occur among children following involvement in AAA/AAT.

In addition to behavior and communication benefits, a number of researchers have found significant changes in mood and anger symptoms in children and adolescents involved in AAA/AAT. For example, Lukina (1999) reported that following completion of a dolphin-assisted therapy program parents reported their children showed a significant decrease in depression symptoms and experienced improved sleep. In a study examining anger, Hanselman (2001) reported that adolescent participants experienced a significant decrease in state and trait anger after an animal-assisted anger management group. In more recent study, Kaiser, Spence, Lavergne, and Bosch (2004) reported that following 5-day therapeutic riding camp, child and adolescent participants showed a significant decrease in their anger, as measured by the Children's Anger Inventory (Nelson & Finch, 2000) Taken together, these empirical studies indicate AAA/AAT interventions can result in significant improvements in mood and anger symptoms among children and adolescents.

Researchers have also found that children involved in AAA/AAT show improvements in anxiety symptoms although the findings in this area are mixed. For example, Hansen, Messinger, Baun, and Mengel (1999) reported that younger children (ages 2-6) showed significantly lower behavioral distress while undergoing a physical examination when a dog is present compared to children who do not have a dog present during a physical examination. In study using dolphins, Lukina (1999) reported that following a dolphin-assisted therapy program, child participants who have symptoms of phobia, enuresis, and stammering showed a significant decrease in night phobias and hysteria, as reported via a parent questionnaire. In contrast to these studies, Havener et al. (2001) found there was no significant difference in peripheral skin temperature or

behavioral distress for children undergoing dental procedures with a dog present, compared with children who did not have a dog present. Therefore, while research suggests that AAA/AAT is helpful in reducing anxiety symptoms, this only appears to be true in children with a heightened level of anxiety at baseline.

A small body of research also suggests that AAA/AAT leads to improvements in social skills among children. For example, Nathanson (1998) found that, per parental report, children maintained improvements in eye contact and initiating social greetings 2-3 years after completing a dolphin-assisted therapy program. In a more recent study, Sams et al. (2006) reported that children with autism engaged in significantly greater social interaction in animal assisted occupational therapy sessions versus traditional occupational therapy sessions. These studies suggest AAA/AAT positively impacts child/adolescent social skills.

There is also a small amount of empirical literature on AAA/AAT's impact on children's self-efficacy, but the findings are conflicted. For example, Macauley and Gutierrez (2004) reported that following a 6-week hippotherapy program, parents reported their children made greater improvements in self-concept following hippotherapy in comparison to traditional therapy. In contrast, Kaiser et al. (2004) reported that following 5-day therapeutic riding camp, there was no significant difference in the child and adolescent participant scores of self-competence. These conflicting findings may be due to the difference in length of intervention, type of intervention, and differences in measurement. The small number of studies and their conflicting results demonstrate that more research is needed to determine if AAA/AAT impacts children's sense-of-self.

The empirical research of AAA/AAT with children is limited in spite of repeated calls for more empirical studies. The empirical studies mentioned above have many weaknesses including

small sample sizes, inadequate descriptions of measures, dependent variables, and research methods, and the presence of several confounding variables (e.g., self-selection, history, maturation, bias). Furthermore, some of these studies have failed to report significant differences. Due to the small number of studies and the multiple weaknesses therein, further research is needed to demonstrate the effectiveness of AAA/AAT interventions with children. In particular, the area of self-efficacy is lacking sufficient empirical examination. Therefore, further empirical research is needed to determine if AAA/AAT is beneficial for children regarding the area of self-efficacy.

AAA/AAT with Horses

Another area in AAA/AAT research warranting further investigation and of particular relevance to this dissertation is the use of a horse as the therapeutic agent. The purposeful inclusion of a horse in treatment is referred to interchangeably in the field as equine-assisted therapy (EAT), equine facilitated psychotherapy (EFP), riding therapy (RT), equine-assisted experiential therapy (EAET), and hippotherapy. The lack of research on EAT is notable gap in the AAA/AAT literature as horses offer a unique type of interaction in comparison to dogs, which are the most commonly used animals in AAA/AAT. Because horses are prey animals (e.g., of mountain lions and wolves) and are constantly scanning the environment for danger, they are highly attuned to their handlers and mirror their handlers' emotions and behaviors. Working with a horse requires its handler to develop a trusting relationship, to set consistent and firm boundaries, and to carry an air of confident competence. Forming a relationship with, handling, and riding a large animal such as a horse offers a sense of empowerment to the individual that is difficult to reproduce in a traditional treatment setting. In addition, the physical nature of grooming a horse, riding a horse, and engaging in the natural environment of a stable

offer added experiential and physiological benefits to treatment. Because of its potential benefits, the practice of EAT warrants further research.

Consistent with the majority of the AAA/AAT literature, the literature on EAT lacks in rigorous empirically sound research. The majority of research on EAT is composed of subjective reports, case studies and qualitative analyses that provide some initial information about EAT but are uncontrolled and open to bias. These preliminary studies suggest human-horse interaction is beneficial and make suggestions about how EAT should be used.

In a paper outlining who would benefit from EAT interventions and how EAT can be utilized, Rothe, Vega, Torres, and Maria (2005) suggested children with anxiety, behavioral problems, mood disorders, autism, and post-traumatic stress disorder would benefit from EAT. Rothe et al. (2005) stated the objectives of EAT are to develop motor coordination, communication skills, assertiveness, self-efficacy, creativity, problem solving, responsibility, and relationships. The authors concluded that EAT is a beneficial treatment modality for people who ordinarily shun emotional and physical closeness. However, there is little evidence in the literature to support these assertions.

As noted above, proponents of EAT suggest that using a horse as a therapeutic adjunct allows for increased interpersonal skills and positive relationships. In support of this assumption, Vidrine, Owen-Smith, and Faulkner (2002) reported their clients displayed improved threat appraisal and help-seeking behavior, trust, positive interpersonal interactions empathy, and appropriate physical affection as a result of therapeutic vaulting sessions at their EAT private practice. Following a 9-week EAT program, Ewing, MacDonald, Taylor, and Bowers (2007) reported that, despite the lack of findings in their quantitative analyses, their qualitative analyses suggested youths demonstrated increased empathy, communication, social skills. In a case study

of a client diagnosed with an eating disorder, Christian (2005) reported EAT activities helped the participant gain insight into her problems, thus learning to use her support systems. Although these studies report positive results, they have several weaknesses including potential bias, lack of control, and lack of quantitative support.

In addition to improvements in relationships, common benefits cited by EAT proponents include increases in self-esteem, self-efficacy, and self-concept; however, the findings are mixed. For example, Bizub, Joy, and Davidson (2003) found individuals diagnosed with schizophrenia in a psychiatric rehabilitation program reported increased self-efficacy and self-esteem following a 10-week therapeutic horseback riding program. In addition, Burgon (2003) found that women diagnosed with depression and schizophrenia reported improved confidence and improved self-concept following weekly riding therapy. As mentioned previously, Macauley and Gutierrez (2004) reported that following a 6-week hippotherapy program, parents reported that their children had improved self-concept. In contrast to the above studies, Kaiser et al. (2004) found that following 5-day therapeutic riding camp, there was no significant change in children and adolescents' self-competence. Similar to the EAT literature on relationship benefits, the above studies have design flaws that call their findings into question, including: lack of quantitative support, potential for bias, and lack of control.

In the area of anger management there is some empirical evidence that EAT is effective. For example Kaiser et al. (2004) found that following a 5-day therapeutic riding day camp, children demonstrated a significant decrease in overall scores on the Children's Inventory of Anger (Nelson & Finch, 2000) in comparison to children who did not attend the riding camp. Although it is only one study, the above investigation exhibited satisfactory scientific rigor and thus its findings can be assumed to be a valid indication of EAT's usefulness.

There is also some empirical evidence suggesting EAT is effective in improving psychological well-being. For example, Klontz, Bivens, Leinart, and Klontz (2007) found that adults in a residential treatment facility who took part in EAT group treatment during an 8-month period participants showed significant and stable reductions in overall psychological distress and enhancements in psychological well being as measured by the Brief Symptom Inventory (BSI; Derogatis, 1993) and the Personal Orientation Inventory (POI; Shostrom, 2000). The authors' use of standardized measures and data collection overtime lend validity to their findings despite the lack of control in this study.

Taken together, these studies reflect both the potential and the lack of sufficient empirical support for EAT. EAT has been reported to improve interpersonal skills and relationships, self-concept, self-esteem, self-efficacy, anger management, and psychological well-being. However, only improvements in psychological well-being and reductions in anger are backed by quantitative evidence. In order for EAT to gain mainstream acceptance, more research is needed to support EAT as an effective intervention.

EAT and Self-efficacy

As mentioned in previous sections, researchers, clinicians, and subjects have reported that AAA/AAT using horses leads to increases in self-efficacy among adolescents. However, the literature regarding EAT's effectiveness in improving self-efficacy is minimal and contradictory; more evidence is needed to support the use of EAT to increase self-efficacy among adolescents.

Self-efficacy, defined as an individual's belief in his or her capability to organize and execute the courses of action that are required to achieve his or her desired outcomes (Bandura, 1997), is an important aspect of emotional well-being among adolescents. Although the two are often confused, self-efficacy is different from self-esteem. Self-efficacy involves an individual's

belief about what he or she can do with what he or she has in different circumstances while self-esteem involves an individual's judgment of his or her self-worth. Increased feelings of competence lead to increased feelings of self-worth and thus, self-efficacy can be seen as the basis upon which self-esteem is built. According to Bandura (1997), self-efficacy beliefs influence individuals' actions, effort, perseverance, and resilience when faced with obstacles and failure, as well as the amount of stress and depression individuals experience during times of adversity.

In addition to predicting how people respond in difficult times, perceived self-efficacy predicts the goals people set for themselves and how well they perform (Bandura, 1997). This means that two different people in the same circumstance with the same skills may perform differently due to dissimilar beliefs about their personal efficacy. Perceived self-efficacy is particularly important during adolescence, the time period when identity formation occurs. Adolescence requires an individual to master many new skills and assume increasing responsibility as they learn the ways of adult society. The ways that adolescents build and exercise their personal efficacy play a key role in setting who they will become and what they will do (Bandura, 1997). An adolescent who has a low sense of self-efficacy in academic activities, relationships, and self-regulation is at an increased risk of depression and low vocational achievement later in life (Bandura, 1997). Several studies have demonstrated that low self-efficacy is related to increased levels of depression and anxiety among adolescents (Bandura, Pastorelli, Barbaranelli, & Caprara, 1999; Comunian, 1989; Ehrenberg, Cox, & Koopman, 1991; Landon, Ehrenreich, & Pincus, 2007; Matsuo & Arai, 1998; Muris, 2002; Yue, 1996). Perceived self-efficacy plays an important role in adolescents' emotional well-being and consequently, building self-efficacy is often a goal of therapeutic interventions with adolescents.

Self-efficacy is developed through a variety of pathways including vicarious experiences, cognitive stimulation, verbal instruction, and enactive mastery experiences. Of these, enactive mastery (real life) experiences produce stronger and more generalized efficacy beliefs because they provide the most authentic evidence of whether one can master whatever it takes to succeed (Bandura, 1997). Due to the hands-on nature of EAT, it may be more effective than traditional talk therapy in increasing perceived self-efficacy. Unlike therapies that rely on verbal persuasion to build self-efficacy, EAT allows individuals to build feelings of self-efficacy through enactive mastery experiences. EAT clients have the opportunity to build a relationship with, care for, and control a large and often intimidating animal. This requires learning to read and predict a horse's reactions, to maintain safe physical boundaries, to use a variety of unfamiliar equipment, to perform new physical maneuvers, to work cooperatively with the therapist and with other clients, and to solve common problems that occur when working with horses. Success at these tasks builds an individual's perceived self-efficacy and has the potential to generalize to other areas of his or her life. The purpose of the current study is to determine if an adolescent's general perceived self-efficacy is impacted by participating in an EAT program.

Hypothesis

The research regarding AAA/AAT discussed above suggests that participation in AAA/AAT, and particularly in EAT, may result in improved self-efficacy among children and adolescents. Therefore, it was hypothesized that the participant in the present study would report a positive change in her self-efficacy on the New General Self-Efficacy scale (NGSE; Chen, Gully, & Eden, 2001) after engaging in EAT (B) compared to her baseline scores on NGSE (A).

METHOD

Participant

The participant in the current study was a Caucasian female (n=1) aged 14 enrolled in the Horsemanship program at Thomas Center for Therapeutic Riding (TCTR) in Damascus, OR. The participant sought out the Horsemanship program at TCTR hoping to improve her self-confidence. She was not diagnosed with a physical, emotional, or learning disorder prior to beginning EAT at TCTR.

Setting

TCTR is a nationally accredited therapeutic equine center serving children, adolescents, and adults with various medical, emotional, and developmental challenges including Cerebral Palsy, Multiple Sclerosis, Autism, Traumatic Brain Injury, Attention Deficit Disorder, and Down Syndrome. TCTR staff members are North American Riding for the Handicapped Association (NARHA) certified therapeutic riding instructors. Horsemanship sessions at TCTR involve basic horse care and riding skills and are tailored to clients' specific emotional and physical needs. Instructors use a variety of exercises, drills, and games to encourage the development of solid horsemanship skills and to help the riders improve their ability to focus, develop patience, improve communication, increase self esteem, enhance strength and balance, and improve posture, muscle tone, and flexibility. Sessions generally occur once per week and last an hour each although they may occur more frequently depending on client need and availability of resources. Clients may choose individual or group sessions. Sessions are composed of riders with similar needs and skills, and are continually modified to challenge the rider. Clients are referred to TCTR through their website and through word of mouth. Clients complete an initial assessment with a therapeutic riding instructor to determine their physical and emotional needs.

This initial assessment is not used to diagnose physical or emotional disorders but instead is used to develop an individualized horsemanship curriculum based on the riders' personal goals and ability.

In addition to TCTR, the investigator screened applicants at Forward Stride Center for Therapeutic Riding (FSCTR) located in Beaverton, OR. FSCTR is a nationally accredited therapeutic equine center serving children, adolescents, and adults with a range of difficulties including: Down Syndrome, Cerebral Palsy, Spina Bifida, Autism, Post-Traumatic Stress Disorder (PTSD), ADHD, dissociative disorders, eating disorders, and people recovering from injuries or sickness such as back injuries or cancer. FSCTR staff members are all North American Riding for the Handicapped Association (NARHA) certified therapeutic riding instructors and include a social worker, a physical therapist, and an occupational therapist. FSCTR clients participate in different programs based on their specific needs. Programs available are Hippotherapy, Sport Riding, and Vaulting. Hippotherapy sessions involve physical, occupational, or speech therapy utilizing the multidimensional movement of a horse; Sport Riding sessions involve basic horse care and riding skills; Vaulting sessions involve performance of acrobatic and dance-like movements on the back of a moving horse.

Measure

The New General Self-Efficacy Scale (NGSE) was utilized to measure perceived self-efficacy. NGSE is a self-report measure composed of eight items regarding an individual's self-appraisal of his or her general ability to succeed. Items are scored on a 5-point Likert-type scale from *strongly disagree* (1) to *strongly agree* (5). Chen et al. (2001) developed the NGSE to assess the trait-like dimension of self-efficacy, termed general self-efficacy. The NGSE was developed using a sample consisting of 639 undergraduate students enrolled at a large mid-

Atlantic university comprised of 78% women with a mean age of 23. The test-retest reliability coefficients for the NGSE scale range from .62 to .66 and were established during the course of a semester wherein 316 undergraduate students were given the measure three times. Average intervals between the three surveys were 22 days between the first and second, 46 days between the second and third, and 67 days between the first and third surveys. Internal consistency reliability was high on all three occasions (.87, .88, and .85, respectively). Administration of the NGSE does not require special training.

Content validity of the measure was established using two independent panels comprised of 8 graduate students and 14 undergraduate students in psychology who were given the definitions of GSE, self-esteem, and another construct similar to self-esteem and GSE categorized as 'other', and asked to determine the category into which the NGSE items best fit. The graduate students sorted 98% of the NGSE items as GSE and 2% of the NGSE items as self-esteem. The undergraduate students sorted 87% of the NGSE items as GSE, 11% as self-esteem, and 3% as 'other.' Scherbaum, Cohen-Charash, and Kern (2006) established the construct validity of the NGSE using a sample of 606 university students. The authors compared the NGSE to two other measures of general self-efficacy using item response analyses. Item response analyses are used to evaluate measures in terms of how well their individual items assess a trait at different levels of that trait (e.g., high vs. low levels of GSE). The authors found the NGSE demonstrated the most desirable psychometric properties of the three measures. The NGSE was able to differentiate between individuals with low levels of GSE and demonstrated appreciable relationships with the latent construct of GSE.

Procedure

After receiving approval from the Institutional Review Board at Pacific University, the author gave parents and their children seeking to begin Horsemanship classes at TCTR or Sport Riding or Vaulting classes at FSCTR the opportunity to participate in the current research study. In order to begin a program at TCTR or at FSCTR the parent completed an application regarding how the adolescent was hoping to benefit from therapeutic riding including his or her short-term and long-term goals. When an application was submitted, the lead instructor at TCTR or FSCTR asked if the adolescent and his/her parent were interested in participating in a research study. If the parent/guardian and the adolescent both indicated they were interested, the researcher met with them and had them complete an informed consent form (see Appendix B) and a demographics questionnaire (completed by the parent or guardian; see Appendix C), as well as an assent form (completed by the adolescent; see Appendix D) and the NGSE. The demographic questionnaire consisted of questions about age, race, sex, and education, including a question about the presence of a learning disorder that interferes with reading comprehension. If an adolescent did not assent to participation in the study he or she was not included in the potential participant pool even if his or her parent or guardian gave consent. In order to ensure that the participant understood question 4 on the NGSE, the investigator added the word 'task' in parentheses behind the word 'endeavor.' Following completion of study-related materials, the investigator collected the completed informed consent, demographic questionnaires, and NGSE forms, removed the applications that met exclusionary criteria (the presence of a learning disorder that interferes with reading comprehension or did not give assent), scored the NGSE, and selected the applicant with the lowest NGSE score for participation in the study (as this applicant would demonstrate the most potential for change in his or her self-efficacy). Due to a

significant economic decline leading to a marked decrease in adolescents seeking EAT, the investigator was only able to select the participant from a pool of two applicants (one from each equestrian center mentioned above).

The present study utilized a single subject A-B-A-B design. The single subject design is an empirically validated method of behavioral investigation (Barlow, Nock, & Hersen, 2009). It provides a clear evaluation of the effectiveness of a given treatment by using the subject's baseline behavior as a control (A) and comparing this to the subject's behavior over repeated applications of the treatment (B). The advantage of the single case design is that it makes treatment effects, environmental, and individual influences visible to the researcher that may have been hidden if the experimenter were to average scores across a larger number of subjects.

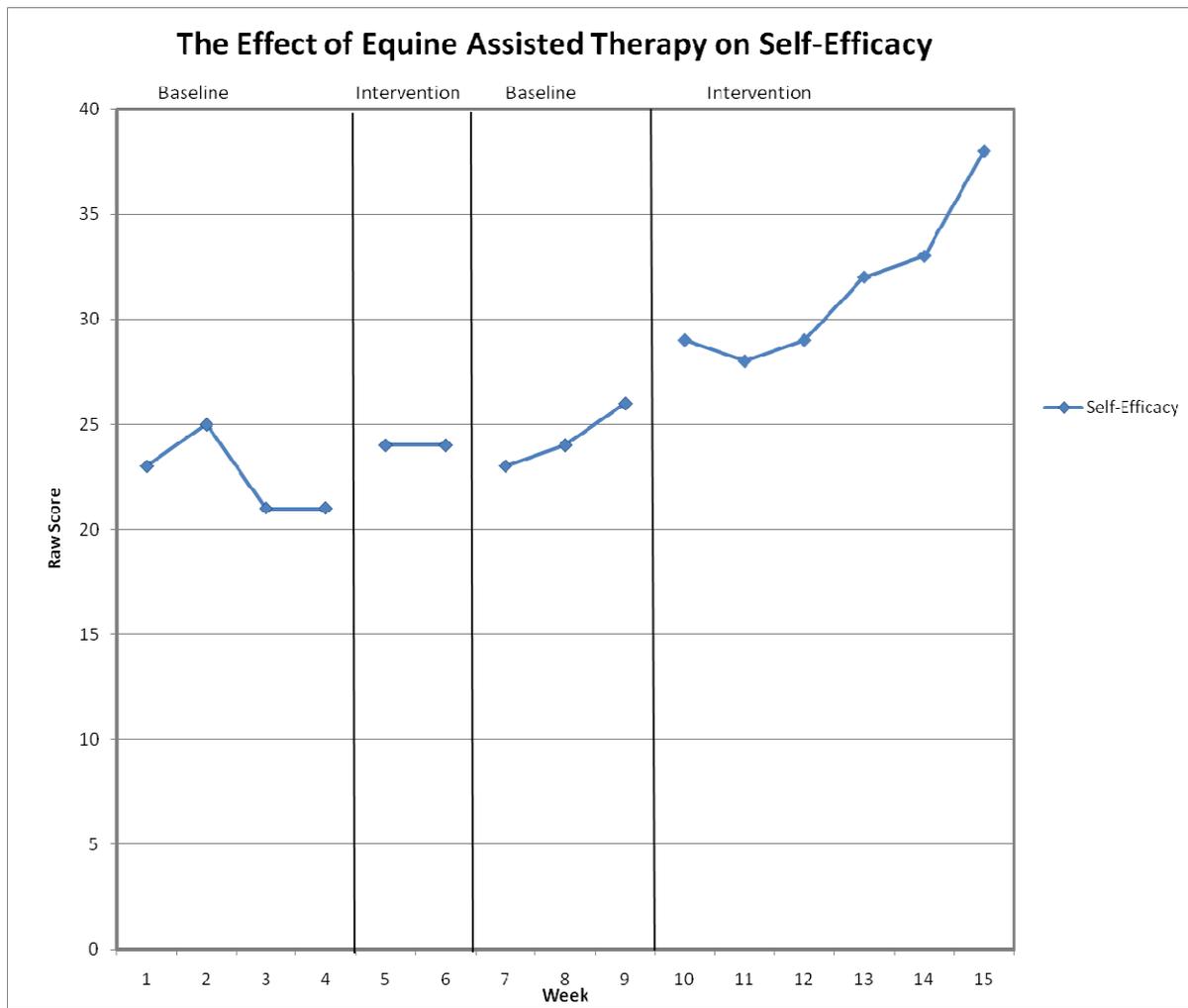
The NGSE score obtained during the initial meeting with the researcher served as the first data point. Further data points were collected once a week with the investigator present for a period of 3 weeks until a stable baseline was established (A). Following the first baseline period, the participant participated in two weekly Horsemanship sessions after which she completed the NGSE scale (B) with the investigator present. A planned 2-week withdrawal of treatment during which time the participant and her family were on vacation served as the second baseline period (A); the participant's mother administered the measure once a week during her 2-week absence taking precautions to ensure the participant's confidentiality (i.e., the participant completed the measure in private and folded the measure and put it in an envelope before giving it back to her mother). An additional week of baseline data (A) was obtained due to extreme weather conditions at which time the investigator was present to administer the measure. Following the second baseline period, the participant completed the NGSE after each weekly EAT session for a period of 6 weeks (B). The investigator or her representative was able to be present to administer

the measure at all but two of these sessions; the participant's mother administered the NGSE when investigator or her representative were unable to be present and followed the same procedures to ensure confidentiality outlined above.

RESULTS

The initial baseline period showed a variable trend, with self-efficacy scores first increasing and then decreasing over the course of three data points. In order to obtain a stable baseline from which to compare the treatment condition, the investigator extended the baseline measurement period. A stable baseline was achieved by the fourth data point with a self-efficacy score of 21 on two consecutive occasions. A slight increase in self-efficacy scores was recorded during the first treatment period with two consecutive self-efficacy scores of 24. Following the first two treatment sessions, a second, planned 2-week baseline period began. During the planned 2-week baseline period, self-efficacy scores remained stable with scores of 23 and 24 respectively. Extreme weather conditions prohibited resumption of treatment on the planned date and an additional baseline point was recorded showing an increased self-efficacy score of 26. The second 6-week treatment period revealed a steady increase in self-efficacy scores with a final self-efficacy score of 38 (see Figure A on next page).

Figure A



DISCUSSION

AAT/AAA is becoming an increasingly popular intervention with children and adolescents. Sound empirical research in the area of AAT/AAA is limited; however, there is an abundance of subjective reports from researchers, clinicians, and patients that suggest AAT/AAA is a beneficial intervention for a variety of concerns including anger and mood disorders, anxiety, social skills, and self-efficacy. The growing popularity of AAT/AAA interventions combined with the limited number of empirical research studies supporting its effectiveness point to a need for additional empirical studies.

Two areas in need of further investigation are the use of horses as therapeutic agents of change and AAT/AAA's impact on self-efficacy. EAT interventions in particular have been suggested to increase self-efficacy because of the enactive mastery experience of handling and riding a large animal. Due to the hands-on nature of EAT interventions, it is thought that EAT is uniquely equipped to increase self-efficacy among adolescents. The purpose of the present study was to add to the body of AAT/AAA literature with an examination of EAT's effect on an adolescent's sense of self-efficacy using a single-subject design. The present study hypothesized that an adolescent female reporting a low- to mid-level of self-efficacy would experience an increase in self-efficacy over the course of 8 EAT sessions.

The results of the present study supported this hypothesis with a notable increase in self-efficacy following completion of treatment. Due to the nature of single subject research design, significance was not determined. Over the course of 15 weeks and 8 EAT sessions, the participant's perceived self-efficacy scores on the NGSE increased from a baseline score of 21 to a final score of 38 out of a possible score of 40. This finding supports the use of EAT as an effective intervention to increase self-efficacy among adolescent girls. This finding is consistent

with the findings of the majority of EAT studies which suggest that EAT is an effective intervention for improving self-efficacy among adults and adolescents (Bizub et al., 2003; Burgon, 2003; Macauley & Gutierrez, 2004). However, these results conflict with the finding of Kaiser et al. (2004), which indicated that EAT had no significant impact on children and adolescents' reported self-competence. This discrepancy is likely due to differences in measurement instruments, differences in the constructs of self-competence and self-efficacy, and differences in the duration of EAT. The present study utilized the NGSE which was specifically designed to measure perceived general self-efficacy whereas Kaiser et al. (2004) utilized the Self Perception Profile for Children (SPPC; Harter, 1988) which measures perceived self-competence over five different domains (scholastic competence, social acceptance, athletic competence, physical appearance, behavioral conduct). Although perceived self-competence over these five domains is similar to generalized self-efficacy, it is not the same construct. As mentioned earlier, generalized self-efficacy refers to an individual's belief in his or her capability to organize and execute the courses of action that are required to achieve his or her desired outcomes, whereas perceived self-competence refers to an individual's overall sense of worth or self-esteem as measured by her or his perceived competence in areas he or she considers important (Aasland & Diseth, 1999). Therefore, it is likely that the discrepancy between the Kaiser et al. (2004) finding and the present finding was due in part to differences in the construct measured and the measures themselves. Additionally, the present study followed the participant over 8 weeks of EAT sessions whereas the Kaiser et al. (2004) study followed its participants over 5 consecutive days of therapeutic riding camp. Thus, the participant in the present study had a greater amount of time in which to build and generalize perceived self-efficacy than the participants in the Kaiser et al. (2004) study had to build perceived self-competence over five domains. This finding is

consistent with the majority of EAT research examining self-concept which suggests that improvements are made over the course of several weeks (Bizub et al., 2003; Burgon, 2003; Macauley & Gutierrez, 2004). More research is needed to support EAT as an effective intervention for increasing self-efficacy among adolescents; however, the results of the present study add to the empirical literature supporting its use.

The results of this study support the use of EAT as an intervention to improve self-efficacy among adolescents. As mentioned previously, self-efficacy is most effectively gained through enactive mastery experiences. As mastery experiences in one domain accrue, self-efficacy builds and is thought to generalize to other areas of functioning (Bandura, 1997). EAT offers the unique opportunity for adolescents to build self-efficacy through enactive mastery experiences (i.e., grooming, handling, riding and building a relationship with a horse). The findings of this study suggest that EAT leads to improvements in generalized self-efficacy over time. Perceived self-efficacy plays an important role in adolescents' emotional well-being. Several studies have demonstrated that low self-efficacy is related to increased levels of depression and anxiety among adolescents (Bandura et al., 1999; Comunian, 1989; Ehrenberg et al., 1991; Landon et al., 2007; Matsuo & Arai, 1998; Muris, 2002; Yue, 1996). Effectively building self-efficacy in therapy with adolescents is a key goal because of its crucial role in the emotional well-being of adolescents. The enactive mastery opportunities inherent in EAT interventions offer a powerful alternative to traditional talk therapies for increasing self-efficacy among adolescents. Therefore, it is recommended that EAT be considered as an intervention for adolescents for whom increased self-efficacy is a therapeutic goal.

The present study has several limitations that restrict the conclusions that can be drawn from its findings. For example, the results of the present study cannot be generalized to

individuals of different demographic backgrounds from the subject (e.g., race, gender, socioeconomic status). The measure utilized in the present study also limits this study's findings. The use of a self-report measure to assess self-efficacy is limited by the reactivity of self-reporting (e.g., influence of timing, motivation to change, and expectancy on self-observation), thus, its results do not necessarily reflect objective behavior change (Barlow et al., 2009). In addition, the NGSE was normed on a college age population and therefore may not be an accurate measure of self-efficacy among adolescents. In order to compensate for the more advanced language utilized in the NGSE, the investigator added the word task in parentheses behind the word endeavor in one of the questions. This alteration, although minor, limits the confidence with which we can interpret the results of the present study. The test-retest coefficients for the NGSE were also relatively low and limit the confidence with which we can interpret the present finding. There were also unplanned changes to the research timeline and structure that limited the inferences that could be drawn. The resulting quasi-experimental nature of this study limits the causal inferences that can be drawn about the effects of the intervention. Despite its limitations, the findings of the present study provide some evidence for the effectiveness of EAT and offer a basis for future experimental replications.

More research is needed to determine the effects of EAT among the adolescent population. Specifically, more empirical research utilizing a control condition and standardized measurements appropriate for adolescents are needed. Studies comparing the effectiveness of EAT to traditional therapies using randomized assignment would also meaningfully contribute to the AAA/AAT literature. In addition, longitudinal studies are needed to determine the long-term impact of EAT. For example, many children and adolescents participate in EAT for a period of 1 or more years and research is needed to determine the impact that a year-long period of EAT has

on well-being. Also, more research is needed to determine if the positive effects of EAT continue following the conclusion of therapy. For example, future studies could follow up with adolescents once a year for 5 years after completing an EAT program to determine if it had a long-term impact on well-being and functioning. More research is also needed to determine if gender differences exist in the effectiveness and benefits of EAT and if EAT is an effective intervention for minority status populations.

In order for EAT to join the ranks of traditional therapies for emotional and mental health, more research is needed to guide its implementation in mental health settings. At this time, there is a lack of standardization in how animals are incorporated into therapy. This lack of standardization speaks to a larger issue, the absence of an overarching theory of change to guide animal assisted therapies. At this time mental health professionals who incorporate animals into treatment primarily draw from their own theoretical orientations to guide how they utilize animals as therapeutic adjuncts. As animal assisted therapy continues to grow in popularity and evidence of its effectiveness accumulates, it may become important to develop a theory of change on which to build a set of guidelines for integrating animals into psychotherapy in order to ensure that clients are receiving the best possible care.

It is also important to note that from a social justice perspective, EAT is problematic. Therapy involving horses requires significant resources including the cost of owning and operating a stable, the cost of horses and equipment, as well as access to land. Thus, individuals who have limited resources and/or live in urban areas are unlikely to have the ability to participate in EAT programs. Given that such individuals are more likely to be people of color and other historically marginalized populations, this is of particular concern. Therefore, it is imperative that health professionals create opportunities for individuals to benefit from EAT

programs who otherwise would not have the ability to participate in EAT due to limited resources and/or location. Non-profit EAT programs that serve historically under-represented and marginalized populations already exist in several large metropolitan areas. A greater number of these organizations are necessary to ensure equal access to all people in need of the benefits that EAT can provide.

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Appendix A

Parental Informed Consent Form

1. Study Title

SELF-EFFICACY AND EQUINE ASSISTED THERAPY: A SINGLE SUBJECT STUDY

2. Study Personnel

	[Primary Investigator]	[Faculty Advisor]	[Research Assistant]
Name	Haley Geddes, MS	Catherine Miller, PhD	Laura Krause, BA,BAS
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Telephone	503-352-2474	503-352--7324	507-330-1354

3. Study Location and Dates

This study will be conducted at Thomas Center for Therapeutic Riding (TCTR) beginning at the time of you and your child's agreement to participate in the study and your child's completion of the self-efficacy measure included in this study. If your child is selected for further study, data collection will last from the time when he or she is added to the waiting list at TCTR through his or her first 8 sessions at TCTR.

4. Study Invitation and Purpose

Your child is invited to participate in a study on the relationship between therapeutic horseback riding and an aspect of self-confidence. The results of this study will be used to inform the practice of equine assisted therapy.

5. Study Materials and Procedures

Participation in this study involves your child completing a short (5 minute) questionnaire about his or her feelings of self-confidence once every week beginning the week he or she is added to the TCTR waiting list and, if she or he is selected for further study, ending after he or she has completed 8 sessions at TCTR. Once sessions have begun, filling out the measure would occur in the TCTR office immediately following your child's Sport Riding session. The researcher will choose one child from the pool of participants on the FSCTR waiting list for further study. Your child's age and his or her scores on the self-efficacy measure will be considered when selecting a child to follow for the full duration of this study (8 sessions at TCTR).

6. Participant Characteristics and Exclusionary Criteria

In order to be considered for participation in this study, your child must be between the ages of 13 and 18, be on the waiting list for Sport Riding TCTR, and must not be diagnosed with a learning disorder that interferes with reading comprehension.

7. Anticipated Risks and Steps Taken to Avoid Them

Your child's participation in this project involves few risks. The materials presented should not cause him or her any discomfort, but if discomfort occurs, you or your child can notify the investigator and she will take steps to eliminate any discomfort. There is some risk that your child may experience psychological distress as a result of taking extra time after session to complete the measure or from being identified as a participant in a research study. These risks will be minimized by the small amount of time needed to complete the measure (5 minutes) and by completing the measure in the privacy of the office at TCTR. It is also possible that your child may experience psychological distress as a result of not being selected for participation in this study. If your child is not chosen to complete the full duration of the study (8 sessions at TCTR) she or he will remain in the pool of participants and, should the subject chosen withdraw from the study, your child will have the chance be selected for further study. If your child experiences a negative reaction to this study, the principal investigator will be available to address his or her concerns or questions.

8. Anticipated Direct Benefits to Participants

There are no direct benefits to your child for participation in this study. His or her participation, however, will allow social scientists to gain a better understanding of how working with horses influences mental health.

9. Clinical Alternatives (i.e., alternative to the proposed procedure) that may be advantageous to participants

Not applicable.

10. Participant Payment

Not applicable.

11. Medical Care and Compensation In the Event of Accidental Injury

During your child's participation in this project it is important to understand that your child is not a Pacific University clinic patient or client, nor will he or she be receiving complete medical care as a result of his or her participation in this study. If your child is injured during your participation in this study and it is not due to negligence by Pacific University, the researchers, or any organization associated with the research, your child should not expect to receive compensation or medical care from Pacific University, the researchers, or any organization associated with the study.

12. Adverse Event Reporting Plan

Participation in the current study is strictly voluntary. Should your child have an unexpected and adverse reaction to the study, the principal investigator will be available to you and your child to discuss how the study has impacted your child and if discontinuing his or her participation in the study would be advised. The principal investigator's complete contact information is available at the top of this form.

13. Promise of Privacy

The records of this study and your child's participation in this project will be kept strictly confidential. Results from your child's participation will be available only to the investigator and her dissertation chair. All records will be stored in a locked file in a locked cabinet and will be destroyed following completion of the study. If a publication or other educational use results from this study, all identifying material will be substantially modified so that your child's identity will be safeguarded.

14. Voluntary Nature of the Study

Your decision whether or not to allow your child to participate will not affect you or your child's current or future relations with Pacific University. If you decide to allow your child to participate, you and your child are free to not answer any question or withdraw at any time without prejudice or negative consequences.

15. Contacts and Questions

The researcher(s) will be happy to answer any questions you may have at any time during the course of the study. Complete contact information for the researchers is noted on the first page of this form. Because the study in question is a student project, please contact the faculty advisor. If you are not satisfied with the answers you receive, please call Pacific University's Institutional Review Board, at (503) 352 – 2112 to discuss your questions or concerns further. All concerns and questions will be kept in confidence.

16. Statement of Consent

I have read and understand the above. All my questions have been answered. I am (write your child's name here) _____'s parent or legal guardian and I give my child permission to participate in the study. I understand that my child will additionally grant his or her assent to participate as well. I have been offered a copy of this form to keep for my records.

Child's Full Name: Please Print

Child's date of birth

Parent/Guardian's Name: Please Print

Parent/Guardian's Signature

Date

Investigator's Signature

Date

17. Participant contact information
--

This contact information is required in case any issues arise with the study and participants' families need to be notified and/or to provide participants' families with the results of the study, if they wish.

Would you like to have a summary of the results after the study is completed? ___ Yes ___ No

Street address:

Telephone:

Email:

Appendix B

DEMOGRAPHIC QUESTIONNAIRE: TO BE COMPLETED BY PARENT

1. How old is your child? _____
2. What grade is your child in? _____
3. What is your child's ethnic background? _____
4. Has your child been diagnosed with a learning disorder that interferes with reading comprehension?

5. Has your child been diagnosed with an emotional disorder? _____
6. (If answered "yes" to question 5) What disorder? _____
7. Is your child currently receiving therapy at another facility in addition to Thomas Center for Therapeutic Riding? _____
8. (If answered "yes" to question 7) What does this therapy entail?

9. Has your child ever received prior equine assisted therapy? _____
10. (If answered "yes" to question 9) What did this therapy entail?

11. What experience does your child have with horses?

Appendix C

Child Assent Form

1. Study Title

SELF-EFFICACY AND EQUINE ASSISTED THERAPY: A SINGLE SUBJECT STUDY

2. Study Personnel

	[Primary Investigator]	[Faculty Advisor]	[Research Assistant]
Name	Haley Geddes, MS	Catherine Miller, PhD	Laura Krause, BA,BAS
Institution	Pacific University	Pacific University	Pacific University
Program	School of Professional Psychology	School of Professional Psychology	School of Professional Psychology
Email	haleygeddes@pacificu.edu	millerco@pacificu.edu	krau3863@pacificu.edu
Telephone	503-352-2474	503-352--7324	507-330-1354

3. Study Location and Dates

This study will be conducted at Thomas Center for Therapeutic Riding (TCTR) beginning time of your agreement to participate in the study and completion of the self-efficacy measure included in this study. If you are selected for further study, data collection will last from the time when you are added to the waiting list at TCTR through your first 8 sessions at TCTR.

4. Study Invitation and Purpose

You are invited to participate in a study on the relationship between therapeutic horseback riding and an aspect of self-confidence. The results of this study will be used to inform the practice of equine assisted therapy.

5. Study Materials and Procedures

Participation in this study involves completing a short (5 minute) questionnaire about your feelings of self-confidence once every week beginning the week you are added to the TCTR waiting list and, if you are selected for further study, ending after you have completed 8 sessions at TCTR. Once sessions have begun, filling out the measure would occur in the FSCTR office immediately following your Sport Riding or Vaulting session. The researcher will choose one person from the pool of participants on the TCTR waiting list for further study. Your age and your scores on the self-efficacy measure will be considered when selecting a person to follow for the full duration of this study (8 sessions at TCTR).

6. Participant Characteristics and Exclusionary Criteria

In order to be considered for participation in this study, you must be between the ages of 13 and 18, be on the waiting list for Sport at TCTR, and must not be diagnosed with a learning disorder that interferes with reading comprehension.

7. Anticipated Risks and Steps Taken to Avoid Them

Your participation in this project involves few risks. The materials presented should not cause you any discomfort, but if discomfort occurs, you can notify the investigator and she will take steps to eliminate any discomfort. There is some risk that you may experience psychological distress as a result of taking extra time after session to complete the measure or from being identified as a participant in a research study. These risks will be minimized by the small amount of time needed to complete the measure (5 minutes) and by completing the measure in the privacy of the office at TCTR. It is also possible that you may experience psychological distress as a result of not being selected for participation in this study. If you are not chosen to complete the full duration of the study (8 sessions at TCTR) you will remain in the pool of participants and, should the subject chosen by the researcher withdraw from the study, you will have the chance be selected for further study. If you experience a negative reaction to this study, the principal investigator will be available to address any of your concerns or questions.

8. Anticipated Direct Benefits to Participants

There are no direct benefits for participation in this study. Your participation, however, will allow social scientists to gain a better understanding of how working with horses influences mental health.

9. Clinical Alternatives (i.e., alternative to the proposed procedure) that may be advantageous to participants

Not applicable.

10. Participant Payment

Not applicable.

11. Medical Care and Compensation In the Event of Accidental Injury

During your participation in this project it is important to understand that you are not a Pacific University clinic patient or client, nor will you be receiving complete medical care as a result of your participation in this study. If you are injured during your participation in this study and it is not due to negligence by Pacific University, the researchers, or any organization associated with the research, you should not expect to receive compensation or medical care from Pacific University, the researchers, or any organization associated with the study.

12. Adverse Event Reporting Plan

Participation in the current study is strictly voluntary. Should you have an unexpected and negative reaction to the study, the principal investigator will be available to you and your

parent/guardian to discuss how the study has impacted you and if discontinuing your participation in the study would be advised. The principal investigator's complete contact information is available at the top of this form.

13. Promise of Privacy

The records of this study and your participation in this project will be kept strictly confidential. Results from your participation will be available only to the investigator and her dissertation chair. All records will be stored in a locked file in a locked cabinet and will be destroyed following completion of the study. If a publication or other educational use results from this study, all identifying material will be substantially modified so that your identity will be safeguarded.

14. Voluntary Nature of the Study

Your decision whether or not to participate will not affect you or your current or future relations with Pacific University. If you decide to participate, you are free to not answer any question or withdraw at any time without prejudice or negative consequences.

15. Contacts and Questions

The researcher(s) will be happy to answer any questions you may have at any time during the course of the study. Complete contact information for the researchers is noted on the first page of this form. Because the study in question is a student project, please contact the faculty advisor. If you are not satisfied with the answers you receive, please call Pacific University's Institutional Review Board, at (503) 352 – 2112 to discuss your questions or concerns further. All concerns and questions will be kept in confidence.

16. Statement of Assent

I have read and understand the above. All my questions have been answered. I (write your name here) _____ give my assent to participate in the study. I understand that my parent will additionally grant his or her permission for me to participate as well. I have been offered a copy of this form to keep for my records.

Full Name: Please Print

Date of birth

Signature

Date