

TRAUMA-FOCUSED EQUINE-ASSISTED PSYCHOTHERAPY EFFECTS ON
CHILD AND ADOLESCENT FUNCTIONING SCALE SCORES
FOLLOWING SIX MONTHS OF TREATMENT

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Amanda Katherine Kruger, B.A.

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Committee Members Approved:

Ty Schepis, Chair

Ollie Seay

Joseph Etherton

Approved:

J. Michael Willoughby
Dean of the Graduate College

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ABSTRACT

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Texas State University-San Marcos

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SUPERVISING PROFESSOR: TY SCHEPIS

Trauma, such as severe neglect or abuse, incurred during critical developmental periods, such as childhood and adolescence, may create negative and pervasive effects in behavior and emotion. Previous scholarship has demonstrated that animals can provide therapeutic benefits for trauma victims, both as companions and in various psychotherapies. Recent research suggests that the addition of equines to the psychotherapy process may be beneficial for those who have experienced repeated traumatic stress. Trauma-Focused Equine-Assisted Psychotherapy (TF-EAP) focuses on using

horses to help clients consistently regulate their own physiology and psychology. The current study examines the effects of six months of sessions of TF-EAP on children and adolescents that had experienced severe abuse or neglect. Child and Adolescent Functional Assessment Scale (CAFAS) scores were analyzed for 15 youths (mean age = 11.1 years) at the start of TF-EAP sessions and again after 6 months of treatment. The CAFAS captures 8 domains of youth functioning, with subscales including school, home, community, behavior towards others, moods/emotions, self-harmful behavior, substance use, and thinking. Results from the Related-Samples Wilcoxon Signed Ranks Test found significant differences ($p < .05$) from initial assessment to follow up in the overall total scores in five out of the seven scales analyzed, including school behavior, home behavior, behavior towards others, community behavior, and moods/emotions. This research contributes to the emerging literature supporting the use of horses as an enhanced therapeutic medium, particularly for children and adolescents who have experienced complex or developmental trauma.

Keywords: Equine-Assisted Psychotherapy, Complex Trauma, Developmental Trauma, CAFAS, Animal-Assisted Therapy, Horses

CHAPTER I: Introduction

In recent decades, the professional and social understanding of psychological trauma has developed and expanded. Although there is now robust research and increasing societal interest in the realm of traumatic experiences, this area is largely lacking coverage in professional curriculum and training (Mattar, 2011; Newman, 2011; Courtois & Gold, 2009). Added to this general lack of knowledge by many professionals is a deficiency in the dissemination of effective treatments for these conditions (Ruzek & Rosen, 2009). This insufficiency of training and distribution of proven treatment options can cause significant and long-term problems to individuals suffering the effects of trauma. This can have ramifications for society at large, as psychological trauma is costly to the individual and the community, both monetarily and in terms of healthy functioning.

It is suggested that in the United States there are over twenty million children with posttraumatic stress disorder (PTSD), and that this population is among the most neglected, under-studied, and inconsistently served in the United States (De Young, Kenardy & Cobham, 2011; Perry, 2000). Although it can be problematic for adults, traumatic experiences incurred during childhood (including neglect, physical, verbal, and sexual abuse) can be particularly damaging and can significantly affect experiences and symptoms that follow.

During infancy, childhood, and adolescence, the body and brain are growing in systematic ways. Disruptions in this neurosequential development can particularly affect areas of self-regulation and can contribute to behavioral and emotional problems. Moreover, those exposed to neglect and abuse from caregivers may suffer deleterious effects in their attachment and relational style, in addition to not receiving outside regulation from their chaotic environment. These symptoms can be amplified for children who experience multiple or continued traumatic events, creating a set of symptoms in an array of domains.

Study Rationale and Hypothesis

Like their adult counterparts, a major obstacle for children and adolescents that have experienced abuse and neglect, and are seeking professional advice and treatment, is access to trauma-focused evidence-based interventions (Toth & Manly, 2011; Wonderlinch et al., 2011). One emerging field of research on treatment of these issues examines the ways in which animals have the potential to be a unique therapeutic tool. Previous research has shown companion animals can have great significance throughout the human lifespan and can provide many social and health benefits. Animals may provide an extraordinary resource to help address psychological problems. In particular, Trauma-Focused Equine-Assisted Psychotherapy (TF-EAP) may be beneficial for children and adolescents. TF-EAP is a neurosequential-informed model of treatment that could help address the unique constellation symptomology in complex and

developmental trauma. These concepts will be discussed more in depth in Chapter II. The objective of this study is to add to the growing evidence base of scientific literature in regards to TF-EAP as an intervention with youth experiencing behavioral and emotional problems.

The Child and Adolescent Functional Assessment Scale (CAFAS) is one of the most common measures to assess the multiple domains of functional impairment for youth with emotional and behavioral problems. This study utilizes CAFAS scores collected by the clinical director of an EAP ranch that provides therapy services for youths that were either adopted, in the foster care system, or have experienced considerable maltreatment. A more extensive review of the CAFAS is found in Chapter III.

Clients were assessed before and after six months of TF-EAP and this data is analyzed to see what, if any, change occurred in functioning. It is hypothesized that the majority of clients will experience a significant decrease in overall CAFAS scores, indicating improvement in the youths' functioning. The limitations in the study include a small convenience sample and non-experimental design.

This thesis is divided into five chapters. Chapter I is an overview of the importance of addressing complex and developmental trauma, and introduction of the idea of TF-EAP as an intervention. Chapter II describes the effects of trauma and reviews relevant literature on animal-assisted interventions. In Chapter III, the methodology of this study is presented. Chapter IV discusses the analysis of the data

collected. Chapter V, concludes with a discussion of the implications of these outcomes, and suggests future directions for research in this area.

CHAPTER II: Literature Review

History and Current Perspectives of Trauma in Psychology

Perspectives in trauma have undergone several adaptations and refinements in the last hundred years. Although acknowledged in early psychotherapy practices at the turn of the 19th century, it was during the 1970's that an increased amount of focus on the impact of psychological stress and trauma occurred. This attention was spurred largely by the difficulties presented by many of those returning from the Vietnam War coupled with changing social factors (Courtois & Gold, 2009). These sociological shifts include the feminist movement, which highlighted the prevalence of trauma in women and children's lives including experiences such as rape, domestic violence, neglect and abuse. The renewed contemplation of trauma in the field of psychology culminated in 1980 with the inclusion of PTSD, along with various other possible traumatic stress related-disorders, in the publication of the Third Edition of the Diagnostic and Statistical Manual (DSM-III, American Psychiatric Association [APA], 1980).

In the DSM-III, traumatic events were deemed rare occurrences that were “outside the range of usual human experiences” (APA, 1980. p. 236). The subsequent revised version, the DSM-IV, published in 1987, also assumed the paucity of traumatic experiences but clarified that these incidents were of grave threat to “life or physical integrity” (APA, 1987, p. 238). In the most recent version—the DSM-IV-TR, published

in 2000—the criteria for PTSD do not define a traumatic event as rare, but operationally defines these episodes as those in which a person experiences, witnesses, or is confronted with a situation involving death, serious injury, or a threat to physical integrity for one's self and/or others.

However, it is not merely exposure to traumatic events that induces negative psychological effects, but also the person's experiences, reactions, and cognitions related to the event—namely fear, lack of control of the situation and hopelessness—that indicate if psychological trauma has occurred (Cromer & Smyth, 2009). These events may also be latently traumatic, with the psychological effects appearing sometime after the trauma. In addition, it is possible to experience vicarious exposure, also called secondary exposure. Example such as Herzog, Everson, and Whitworth (2011), who found that PTSD in Iraqi war soldiers correlated with an increase in secondary traumatic symptoms in their spouses, and Durante et al. (2007), who found higher levels of probable PTSD in children with family members who were emergency medical technicians. Furthermore, professionals who work with or care for traumatized populations are at an increased risk for secondary trauma, compassion fatigue and professional burnout (Newell & MacNeil, 2010; Tehrani, 2007).

A myriad of disturbing experiences, as well as physical injuries, can create a potentially traumatic event. Courtois and Gold (2009) describe these experiences as falling into two broad categories: “acts of God” and “acts of humans,” also known as human-induced (p. 5). Common examples given by the authors from the former category

include natural disasters, illness, accidents, physical or medical maladies, and other incidents where the act is seemingly random and without someone being directly responsible. The latter category, human-induced trauma, includes but is not limited to, sexual and physical assault, verbal and psychological abuse, bullying, acts of terrorism, combat, torture, human trafficking, slavery, and genocide.

A major distinction between these two groups is that the “acts of humans” category typically involves premeditation, planning, and deliberate implementation, and therefore responsibility on the part of someone or a group. A subcategory of this human-induced trauma is betrayal trauma, which involves a major breach of a kinship or role relationships. Courtois and Gold (2009) describe betrayal trauma as relational/attachment trauma, such as all forms of domestic violence, child, physical, emotional, and sexual abuse—including “incest and when the neglect is perpetrated by related and quasi-related individuals within and outside of the family” (p. 5). Increased evidence supports that higher levels of betrayal trauma can be more harmful to physical and psychological health than other forms of trauma (Goldsmith, Freyd, & DePrince, 2012; Martin, Cromer, DePrince, & Freyd, 2011; Charuvastra & Cloitre, 2008). In addition, research has established the perpetrator’s relationship to the trauma survivor is a predictor of pathology experienced, with interfamilial (versus extrafamilial) and interpersonal (versus noninterpersonal) traumas correlating with more negative psychological effects (Cromer & Smyth, 2010; Lawyer, Ruggiero, Resnick, Kilpatrick & Saunders, 2006).

Research has demonstrated the fallacy that traumatic events are uncommon or are experienced by only a small percentage of individuals (Frans, Rimmo, Aberg & Fredrikson, 2005). In addition, in the wake of high-profile traumatic events, such as terrorist attacks (i.e. the World Trade Center on September 11, 2001) and extreme natural disasters (i.e. Hurricane Katrina in 2006), there is a growing need for trauma-focused services. These treatments would address the negative outcomes linked to exposure to traumatic events, such as dissociation, depression, bipolar disorder, anxiety disorders, substance abuse and psychosis, personality disorders, and physical illness (Green et al., 2010; Briere & Jordan, 2009; Courtois & Gold, 2009).

Besides the effects for the individual, there is a direct and indirect economic burden to society, due to subsequent impairments and treatment for trauma-related experiences (Greenberg et al., 1999). A military population can provide a microcosm to examine the implications of this problem. In 2011, Kilmer, Eibner, Ringel, and Pacula used modeling to estimate the social cost to treat PTSD and depression for a cohort of more than 260,000 soldiers deployed to Iraq in 2008. They estimated the total cost of impairment and subsequent treatments would top \$923 million. However they suggested that exclusive use of evidence-based treatments could augment the total by saving almost \$138 million.

The main traumatic stress diagnosis is PTSD, chronic or acute, but one may receive other Anxiety Disorder diagnoses such as Acute Stress Disorder, Generalized Anxiety Disorder, or Anxiety Disorder Not Otherwise Specified (APA, 2000). The

DSM-IV-TR (2000) refers to PTSD, also called simple PTSD, as being generated by exposure to a single traumatic event. Based on field trials, a DSM-IV-TR subcommittee on PTSD found that complex PTSD (CPTSD) could be clinically meaningful (Roth, Newman, Pelcovitz, Van der Kolk & Mandel, 1997). Although this committee advised that the text revision include a separate diagnosis for this chronic exposure, ultimately the DSM-IV-TR left it out and does not distinguish between effects of a solitary event versus exposure to multiple psychological traumas (Busutti, 2009).

Since 2000, continuing research indicates there may be a symptom constellation beyond simple PTSD, particularly for children. Often children, especially those who are in foster care or have been adopted, experience multiple, prolonged, and repeated trauma (in particular interpersonal/ betrayal trauma) that can create somatic, affective, behavioral, existential and relational symptoms that do not fit within the current PTSD diagnostic criteria (Busutti, 2009; Van der Kolk, 2005; Van der Kolk, Roth, Pelcovitz, Sunday & Spinazzola; 2005). In addition to CPTSD, a separate diagnostic category, called Developmental Trauma Disorder (DTD), has been suggested. DTD would be similar to a CPTSD diagnosis, but would account specifically for trauma incurred during developmentally formative years of life, from infancy to childhood and adolescence. DeYoung, Kenardy, and Cobham (2011) advocated that the traumatic stress diagnosis and treatment be developmentally sensitive and include the context of formative relationships. Because these are not separate classifications at this time, research does

not always differentiate beyond classification of PTSD, much less between CPTSD and DTD.

The publication of the DSM-V, tentatively set for May 2013, will undoubtedly refine these criterion in hopes that making more meaningful diagnostic categories will further effective treatments. It is unclear if the forthcoming edition of the DSM will include the specific categories of CPTSD and/or DTD. Currently, the DSM-V website suggests it will include a diagnostic category called Trauma or Stress Related Disorders which would include Reactive Attachment Disorder, Disinhibited Social Engagement Disorder, Acute Stress Disorder, PTSD, Adjustment Disorder and Trauma- or Stressor-Related Disorder Not Elsewhere Classified (American Psychiatric Association, n.d.).

Trauma in Childhood and Adolescence

There are manifold ways that traumatic stress can manifest itself in childhood and adolescence. Single traumatic events are inclined to create more conditioned and behavioral responses to reminders of the traumatic incident. Often a simple PTSD diagnosis would capture these symptoms. As mentioned before, other variables can influence symptom presentation, including the age at which the trauma occurred, the duration and number of episodes, and the nature of the relationship between the victim and perpetrator. Children and adolescents have less control over their environment and are dependent on others to meet their needs and to provide a consistent, healthy and nurturing environment. Children are also at risk to secondary trauma exposure if their

primary care takers are disorganized or experiencing stress (Durante et al., 2006, Van der Kolk, 2005). Various types of repeated experiences can create traumatic stress in childhood and in adolescence beyond simple PTSD. Abandonment, physical/sexual abuse, threats to bodily integrity, coercive practices, emotional abuse, and witnessing violence or death are just a few examples of chronic, developmentally adverse interpersonal trauma that could create symptoms labeled more specifically as CPTSD. Data from the National Child Traumatic Stress Network Complex Trauma Task Force (2003) found in a survey of children who were receiving assessment and/or intervention services that 78% of children experienced more than one trauma type, with the average initial exposure occurring at age five.

Children exposed to repeated trauma and/or chronic maltreatment, such as abuse and neglect, show a wide range of neurobehavioral symptoms. This is attributed to the fact that “chronic trauma interferes with neuro-biological development and the capacity to integrate sensory, emotional, and cognitive information into a cohesive whole” (Van der Kolk, 2005, p. 402). Research has addressed seven specific domains of impairment in children who are exposed to complex and developmental trauma. These include biology, attachment, affect regulation, dissociation, behavioral control, cognition and self-concept (Busuttil, 2009; Cook et al., 2005). These studies list behaviors associated with each of these categories. Biological complications can include sensorimotor developmental problems, balance and coordination problems, somatisation, and overall increased medical problems. Attachment problems can include difficulty with

boundaries, distrust, social isolation, interpersonal difficulties, and difficulty attuning to other's emotional states and perspectives. Regulatory problems may manifest as lack of emotional self-regulation, difficulty in labeling and expressing feelings, difficulty in knowing and describing internal states, and in communicating wishes and needs.

Dissociation tendencies such as impaired memory for state-based events, alterations in consciousness, amnesia, depersonalization, and derealization can also occur. Problems in behavioral control may include poor impulse control, self-destructive behavior, aggression towards others, oppositional behavior, substance abuse, excessive compliance, sleep disturbances, pathological self-soothing behaviors, difficulty understanding/complying with rules, and the reenactment of trauma. Cognitive impairments may present in problems in attention, executive functioning, sustained curiosity, processing novel information, completing tasks, object constancy, planning, responsibility, learning, language development, and orientation in time and space. Finally, a child's self-concept may lack a predictable sense of self, with a poor sense of separateness, disturbances in body image, low self-esteem, and feelings of guilt and shame.

The developing brain, to some extent, is malleable. It responds to activity, experiences, and environmental inputs to shape its growth. Indeed, there is a plethora of research on the neurobiological and developmental correlations of complex trauma in infancy, childhood, and adolescence. Perry (2009) elucidates multiple principles of neurodevelopment that can inform therapeutic work with traumatized and maltreated

children. Sequential development refers to how the brain is organized structurally, in a hierarchical fashion, from the bottom up. Succinctly, the brain develops from the least complex area (i.e. the brainstem) to the most complex areas (i.e. the cortex). Each region develops at different times during childhood, and will be more susceptible to disruptions during these sensitive growth periods. A 2011 literature review by Kirsch, Wilhelm, and Goldbeck examined psychophysiological PTSD characteristics for children and adolescents. They found children and adolescents have physiological differences pre- and post-trauma, in the form of increased baseline activation in heart rate and alterations in the body's stress response system. Others studies have found persistent and sustained changes in the hypothalamic-pituitary-adrenal (HPA) axis that mediate stress response and found this can even affect an individual's offspring (Neigh, Gillespie & Nemeroff, 2009). Ultimately, the organization of higher parts of the brain can depend on input from the lower part of the brain. Even if the traumatic stress discontinues, higher areas will organize in less regulated ways to reflect abnormal patterns of dysregulation from lower areas (Perry, 2002).

As previously noted, the current lack of DSM categories to capture these symptoms can cause significant diagnostic issues and ultimately, treatment problems. This is a particular challenge for children and adolescent diagnoses, as a PTSD diagnosis in the DSM-IV-TR (2000) does not incorporate the age of trauma exposure or whether it was repeated or prolonged interpersonal trauma. Therefore, the criterion for simple PTSD does not capture the scope of symptoms in CPTSD, especially possible

developmental and neurobiological effects. Very often children meet diagnostic criteria for other diagnoses that may envelop partial aspects of a child's multifaceted impairments. These other diagnoses can include depression, attention-deficit/hyperactivity disorder, oppositional defiant disorder, conduct disorder, anxiety disorders, eating disorders, sleep disorders, sleep disorders, communication disorders, separation anxiety disorder, and reactive attachment disorder (Cook et al., 2005). This lack of a consistent diagnosis that can envelop the range of CPTSD symptoms is an impediment to systematic research for effective treatments.

Treatment for Traumatic Stress in Youth

For children and adolescents with PTSD, barriers to treatment include research on the disorder, as well as the dissemination of information about implementation of interventions. More research is needed for the treatment of simple PTSD symptoms (Addler-Nevo & Manassi, 2005) as well a comprehensive treatment for specific symptoms in encapsulated CPTSD/DTD for children and adolescence (DeYoung, Kenardy, & Cobham, 2011; Van der Kolk, 2005).

It is important that effective interventions be formulated and researched for CPTSD. Childhood trajectories impact later development by influencing early developing skill, abilities and tendencies. For example, adverse experiences early in life may interrupt the ability for long-term attachment as an adult (Anda et al., 2005). Again, on an individual level there can be lifelong costs and negative outcomes from traumatic

stress. Traumatic events in childhood are strongly linked to lifetime psychopathology (Copeland, Keeler, Angold, & Costello, 2007). Moreover, functional impairment can cause disruptions in educational, legal, and vocational areas, thus increasing the societal cost for leaving these issues untreated (Busuttil, 2009). Van der Kolk (2005) notes that the majority of the criminal justice population is made up of those with childhood trauma, abuse, and neglect offering a lucid example of the consequences of untreated trauma.

Reviews of effective and empirically supported non-pharmacological treatments for PTSD include trauma-focused cognitive behavior therapy, as well as exposure and eye movement desensitization and reprocessing (Allen & Johnson, 2012; Roman, 2011; Ponniah & Hollon, 2009). In the field, there is growing pressure for mental health professionals not only to utilize empirically-supported treatments (EST) or evidence-based practice (EBP), but to justify their interventions, especially when reimbursements are involved (Fitzgerald, Henriksen & Garza, 2012; Thomason, 2010). Although EST and EBP are similar, they differ in that EST require efficacy be shown in two randomized, controlled trials. In contrast, EBP integrates “research with clinical expertise in the context of the client’s characteristics, culture, and preferences.” In addition, EBP allows for other kinds of evidence, apart from stringent randomized control trials (Thomason, 2010, p. 30).

However, Thomason (2010) notes the pressure in psychology to mandate exclusive use of EST. He articulates that many professionals feel that only EST would move psychology to a primarily medical model, emphasizing pathology and diagnosis.

However, many EBT's have not yet been validated in this way. For example, Richard, Henriksen, and Garza (2012) found although play therapy, an EST, was a common factor among counselors who work with traumatized children, overall clinicians were resistant to solely using this method. Instead, they preferred to choose among multiple interventions tailored uniquely to each child and their specific symptoms.

Human-Animal Interaction and Companion Animals

The area of human-animal interaction (HAI) covers a broad range of topics that have intricate and interchangeable terminology. The umbrella of human-animal interaction covers studies of the human-animal bond (including companion animals), as well as animal-assisted interventions (AAI).

Those studying human-animal interactions have asserted that, "relations between humans and nonhuman animals are morally significant, intense, enduring and pervasive" (Knight & Herzog, 2009, p. 451). The value of the human-animal bond can be seen in cross-cultural contexts both historically, as well as in contemporary times (Walsh, 2009). Starting in infancy, animals seem to be positively intertwined in early childhood experiences and development. There is a ubiquity of animal themes and animal characters aimed at children. Animals are omnipresent in childrens' products, toys, books, TV shows, and films. Despite this particular emphasis, Serpell (1999) acutely notes that:

Psychologists and social scientists have shown a baffling lack of scholarly interest in the child-animal relationship...If interactions with animals are as attractive and important to children as they appear to be, then it is the height of adult arrogance to assume that child-animal relations are somehow irrelevant to normal development. In fact, given the evolutionary history of our species and its overwhelming dependence on other animals as food, workers, companions, religious icons, symbols, and exemplars, it would be somewhat surprising if children evinced no spontaneous affinity for animals. (p. 92)

Many other professionals in the mental health field have commented on the absence of scientific studies investigating the importance of these bonds and the disinclination of the majority to address this topic in theory, research and practice for both adults and children (Knight & Herzog, 2009; Walsh, 2009; Serpell, 2006).

Although scientific research on the human-animal interaction can be exiguous, the existing results indicate many significant benefits. Friedmann and Tsai's (2006) review of the literature supports that there are positive effects in observing animals, being in the physical presence of an animal, as well as interacting with animals. In adults, studies have shown that the presence of a companion animal correlates to a decline in chronic levels of physiological stress indicators during stressful event (Friedmann, Barker, & Allen, 2011). Research supports that HAI is also associated with a variety of other areas of health and well-being, such as living longer and reducing anxiety after a heart attack (Cole, Gawlinski, Steers, & Kotlerman, 2007; Friedmann & Thomas, 1995; Friedmann,

Katcher, Lynch, & Thomas, 1980), increasing physical activity (Salmon & Timperio, 2011), diminishing feelings of loneliness (Duvall Antonacopoulos, & Pychyl, 2010), providing a meaningful occupation (Allen, Kellegrew, & Jaffe, 2000) and aiding those with serious mental illness (Wisdom, Saedi, & Green, 2009).

Research on human-animal interactions specifically with children is not as extensive as with adults. However, what does exist supports many advantageous effects for children, such as increasing empathic development (Daly & Morton, 2009), preventing allergies (Aichbhaumik et al., 2008), providing pain relief (Braun, Stangler, Narveson, & Pettingell, 2009) and encouraging exercise (Salmon & Timperio, 2011). Even just having an animal physically nearby can have significant effects. For example, with a dog present, children in medical setting showed reduced physiological arousal and anxiety (Tsai, Friedmann, & Thomas, 2010; Nagengast, Baun, Megel, & Leibowitz, 1997). Further, children needed less prompting for a cognitive memory task with a dog present versus with a human (Gee & Carr, 2010).

One of the larger areas researched in human-animal interaction is the human-animal bond. This bond encompasses an animal's ability to provide social support to both adults and children. Studies confirm that companion animals can help elderly populations improve cognitive function, and reduce depression and anxiety (Moretti et al., 2010; LeRoux & Kemp, 2008). In addition, research with young adults and adolescents has demonstrated that pets have the ability to be significant attachment figures (Kurdek, 2008; Stevens, 1990). Salmon and Timperio (2011) reason that:

Owning a pet may increase children's perceived social support in the family and can also increase children's opportunities to learn responsibility. Furthermore, through play and games, and general care of pets, these physical and emotional interactions may also benefit children's mental and physical health. (pp. 141-142)

Animal-Assisted Therapy and Trauma

Beyond merely interacting with animals or just having animals present, HAI can further be delineated into animal-assisted activities (AAA) and animal-assisted therapy (AAT). Although AAA and AAT can at times overlap, AAT usually differs from AAA in that it intentionally incorporates the therapy animal into an explicit treatment plan and involves a professional, such as a nurse or physical therapist. While AAA also utilizes a certified therapy animal, their certified handler (who is usually their owner), brings them for more general visits to jails, courthouses, hospitals, nursing homes, residential care facilities and schools. In contrast, AAT is defined as "a goal-directed intervention in which an animal that meets specific criteria is an integral part of the treatment process" (Fine, 2006, p. 23). AAT involves the client, a health/human service professional that has specialized expertise and with the scope of practice of their profession and can additionally involve an animal handler or specialist. Usual components of AAT include specific goals for the client, along with measured progress.

Psychologists, counselors, and social workers may also use AAT in the mental health field. When animals are used in counseling and psychotherapy settings, it can be

referred to as animal-assisted psychotherapy. Although AAT can incorporate animals for both physical and mental difficulties, the concept of AAT for the current study will encompass using animals specifically in a therapeutic mental health setting, with both mental health and animal handling professionals. Hopefully, as the field of HAI grows, more meaningful and consistent distinctions in these terms will be created.

Research on AAT has implications for practice with diverse populations with assorted symptoms. AAT has shown promise as a complementary, evidence-based practice in working with substance dependence (Wesley, Minatrea, & Watson, 2009). Research supports that AAT can enhance the therapeutic alliance (Wesley, Minatrea, & Watson, 2009) as well as add valuable contributions in diagnostic procedures with children (Prothmann et al., 2005). Although to date, AAT has been most studied with animals such as dogs or cats, there are a number of studies supporting use of a variety of other animals in AAT. For example, Berger, Ekeberg, and Braastad (2008) conducted a randomized controlled trial of AAT with farm animals, and found an increase in self-efficacy, coping ability, and quality of life for persons with a range of psychiatric disorders.

In particular, AAT has gained momentum in the mental health field for those suffering from traumatic experiences in childhood. Yorke (2008) looks at AAT from a developmental neurobiological perspective and reviews how the development of the brain can be interrupted by trauma and stress (as described above), affecting functioning throughout the lifetime. She reiterates that earlier, more pervasive abuse or neglect can

have amplified consequences but supports the idea that there may be a window where positive development may still be enhanced. Yorke (2008) states:

Neurobiological research indicates that emotion facilitates cognition and human animal interaction and appears to provide the kind of emotional stimulation that contributes to synaptic shaping during periods of neuro-plasticity. Animals may provide a warm and secure interaction that may be more predictable than other relationships, particularly in stressful or chaotic environments where abuse and or neglect are likely to occur (p. 567).

Ultimately, she concludes, AAT may enhance the therapeutic process by incorporating many unique aspects including positive touch, nurturing, and social interactions.

Equine-Assisted Interventions

A subsection of AAT uses horses in therapy interventions. Again terminology, and hence cohesive research, for these practices is not always readily agreed upon or differentiated by professionals. However, there is some consensus that for those individuals with more physical disabilities, the use of horses in treatment is often referred to as hippotherapy or therapeutic horsemanship. The Professional Association of Therapeutic Horsemanship (PATH) International was founded in 1969 as a form of physical and mental therapy to promote therapeutic horseback riding for handicapped individuals with a range of problems such as amputation, muscular dystrophy, paralysis, and other physical maladies. ("PATH International", n.d.). Although PATH International

can incorporate some psychological aspects into treatment, is primarily focused on physical disabilities. Supporting this approach is a 2012 systematic review by Selby and Smith-Osborne that looked at biopsychosocial interventions involving horses. While the aggregate data suggested only a moderate to low effect, the authors noted they encountered difficulty isolating and measuring the specific therapeutic effect across studies. Furthermore, they concluded that the quantitative research reviewed lends credibility to using equine-assisted techniques as an adjunct to traditional interventions for people with a range of health problems.

Beyond physical handicaps, horses are also specifically involved in psychological services. Equine-assisted psychotherapy (EAP), equine-facilitated psychotherapy (EFP) and equine-assisted counseling (EAC) are all accepted terms, and will be collectively referred to here as EAP. EAP intentionally incorporates horses in mutually beneficial activities such as handling, grooming and riding to help the client. EAP sessions include the client(s), horse(s), an equine specialist, and a licensed, credentialed mental health professional. Like other psychotherapies, work is towards clearly established objectives and treatment goals that are developed by the therapist in conjunction with the client. The Equine Assisted Growth and Equine Assisted Learning Association (EAGALA) is the leading nonprofit association for professionals who employ horses in their treatments for mental health and developmental needs (“EAGALA”, n.d.). Although EAP may appear different from more traditional talk therapies, the therapists still base their methods on their particular theoretical framework. EAP is no different in that it “creates

a stage on which clinicians may apply their chosen theories” (Karol, 2007, p. 89).

Indeed, the mental health professionals who utilized EAP in the referenced studies employ various orientations including psychoanalytic, client-centered therapy, and solution-focused therapy (Chardonnnes, 2009; Karol, 2007; Shultz, 2005).

The literature supports the effectiveness of EAP for an assortment of psychological symptoms. Klontz, Bivens, Leinart, and Klontz (2007) found a reduction in distress along with enhanced well-being among participants after a 4-day EAP residential treatment program, and these effects were found to be stable at a 6-month follow-up. Moreover, EAP for children has demonstrated it can improve well-being and functioning for children with mental health problems (Rothe et al, 2005). A study by Schultz, Remick-Barlow, and Robbins (2007), looked at global assessment of functioning scores for children with a range of diagnoses and found significant improvement in functioning after EAP for children who experienced intra-personal violence. Shultz (2005) quantitatively compared a control group receiving talk therapy to those receiving EAP and analyzed outcomes on psychosocial functioning for at-risk adolescence. She found those participating in the traditional talk therapy did not demonstrate the statically significant change in functioning established by the EAP group. Trotter et al. (2008) performed a study directly comparing an EBP of classroom-based counseling to EAP for at-risk children and adolescents. In their quantitative analysis they found EAP, over the EBP, showed significantly greater improvement in multiple areas including increased social and positive behaviors, and decreased negative behaviors.

Even though some studies of EAP do not find statistically significant changes, they may indicate clinical significance through trends in the data. Ewing, MacDonald, Taylor, and Bowers (2007) performed a qualitative and quantitative study on a 9-week equine-facilitated learning program for children with severe emotional disorders to see the changes in self-esteem, interpersonal empathy, loneliness, and depression. Their statistical analysis did not show significant changes, and the authors reflected that possibly their program was too short to have had an impact. However, they found their qualitative data to be particularly illuminating, with indications that sub-threshold improvements may have occurred. Bachi, Terkel, and Teichman (2011) looked at self-image, self-control, trust, and life satisfaction for at-risk adolescence receiving EAP as compared to a control group. As seen in the previous study, although the authors hypotheses were not statistically confirmed, their data did indicate a positive trend.

Incorporating horses into psychotherapy creates a unique environment, which may facilitate the therapeutic process in a different way than traditional talk therapy conducted in an office. Besides taking place outdoors, logistical aspects of how the client interacts can have noteworthy effects. Karol (2007) describes:

Another example of how the internal world of the client can be affected through the actual experience with the horse without the need for language or interpretation is the feeling of sharing the body, almost, of the horse. This can be an enhancing and empowering experience for many children who often come to psychotherapy feeling insecure and insignificant as they are all too familiar (either

consciously or unconsciously) with their own vulnerabilities. Most of a child's experience is looking up to the taller adult and so always being peered down onto. When a child is on top of a horse, sometimes for the first time in a child's life, he or she is looking down on to an adult. Further, he or she can experience the power of the body of the horse as the horse moves under him or her and so is given an enhanced sense of his or her own body and, thus, this or her sense of 'self'. And yet, the horse is also a vulnerable creature and so serves as an apt companion for a child overwhelmed by his or her own sense of vulnerability and imperfections. (p. 81)

How clients interact with their horse can be remarkably different than with other AAT animals. Equines are prey animals that live in a social, hierarchical group and are watchful and attentive. Consequently, they are highly sensitive and reactive to others in their environment (Trotter, Chandler, Goodwin-Bond, & Casey, 2008; Karol, 2007). In her article, Saslow (2002) describes the perceptual world of horses and notes their particularly sensitive vision, olfactory, and hearing systems, which contribute to their behavior. She notes that horses hear an extreme range of frequencies, and they are highly attuned to human vocal sounds expressing emotion, which change in frequency and volume. Therefore, verbal interactions with the horse require congruent sounds and feelings on the part of the client so as not to unconsciously communicate an unintended message. This can increase emotional regulation.

However, most communication with the horse is nonverbal. This requires the client to become aware of, and hopefully focus on and control, what they are feeling and projecting, in addition to understanding how it may affect others. In these instances the horse can offer instant feedback about the effectiveness of their communication, and thus provide opportunities to practice (and enhance) what works—and what does not work—in their interaction skills. Trotter et al. (2008) succinctly states, “participants learned that if they wanted to change the horse’s behavior, they had to change their own behaviors, thoughts, and feelings” (p. 266). As the client attempts and has successful interactions with the horse, hopefully they will start to transfer these skills in to other relationships.

EAP may be different than traditional talk therapy in that it uses the client’s actual experience in the moment to engage in therapeutic work. This examination of the present can help the client become more aware of what s/he is contributing in daily interactions. The horse provides a singular and straightforward relationship that can give honest feedback. Clients who cope with stress by dissociating may provide an illuminating example of how this kind of feedback can be a catalyst for therapeutic change. Completely dissociating on the back of a horse is not possible without falling off because it requires some attention. Therefore, the client must find new ways of coping when they face difficulties on the horse. Karol (2007) tells of client that would disengage and dissociate from all of her relationships. However, the client felt that while riding, she wanted to be more fully present for her horse, who in return, offered her affection in earnest. Additionally, therapeutic fodder may arise from spontaneous moments during

the session that may at first seem less than optimal. Frustrated behavior on the part of the client or horse can be turned in to a growth situation by breaking down and reviewing the interaction. This can include discussing what was trying to be communicated, what is actually being communicated, and the subsequent effect of the communication. Saslow (2002) refers to the importance of two-way communication and trust with the horse while making sure requests are meaningful, consistent and polite. The goal being that these skills for a positive relationship with the horse may transfer to the clients other relationships.

Specifically EAP may offer help for trauma and abuse victims by assisting in their relational capacity (Meinersmann, Bradberry & Roberts, 2008; Yorke, Adams, & Coady, 2008). For example, children who have been neglected, abused or otherwise had unsafe and negative relationships may therefore not want to engage in new ones. The horse may offer pure affection in an unthreatening way and without making the client feel exploited. The child has to make the choice to interact with the horse and this may provide a safe, accepting and uncomplicated bond that is pivotal to further growth in many respects. Compared to a dog, which may initiate more contact or affection than wanted, with horses, it is usually the client who controls, approaches and establishes the contact. Traumatized children, who may normally avoid physical and emotional closeness, may reengage in a safe, accepting, and confidential relationship with their horse (Rothe et al., 2005). In addition, activities with the client, such as grooming, can be a relaxing and pleasurable experience that fosters bonding and can even improve the horse's health as

well (Saslow, 2002). This human-animal attachment may foster motivation to attend to and actively participate in the therapeutic process, as well as enhance the rapport with the therapist. In this way, the horse can be viewed as a co-therapist who enhances the process by actual physical body experiences, combined with the emotional and psychological connections (Karol, 2007). The tactile experience offered by EAP can be of a more primitive and preverbal nature, which can be difficult to accomplish in the traditional therapist's office.

EAP can be a uniquely potent medium to address complex or developmental trauma. There may be specific neurobiological aspects of EAP that facilitate resilience and positive developmental growth (Karol, 2007). Physical contact with the horse such as grooming, walking, or riding, may provide soothing activities of a rhythmic nature. Yorke (2010) theorizes that EAP may be effective particularly with this population because it:

May offer ways to provide the key ingredients that alter neuro-physiological responses and establish new neuronal pathways that can contribute to sustained healing healthy attachment in relationships and general well-being...Such interventions may be especially useful for traumatized children who are neuro-physiologically deregulated, providing an attunement with another that soothes through touch, proximity and the development of trust. (p. 565)

The Natural Lifemanship Model of Trauma-Focused Equine-Assisted Psychotherapy

Trauma-Focused Equine-Assisted Psychotherapy (TF-EAP) is an emerging practice that uses EAP to focus specifically on effects of traumatic stress. These trauma-informed interventions incorporate several techniques to address the unique constellation of diverse trauma symptomology in the areas affected by complex or developmental trauma including, biology, attachment, affect regulation, dissociation, behavioral control, cognition and self-concept.

The Natural Lifemanship (NL) model of TF-EAP strives to “utilize horse physiology to regulate human physiology, and horse psychology to heal human psychology” (Natural Lifemanship, n.d.). Unlike many other models, which posit that the horse is a mirror for the client’s experience (Trotter et al., 2008; Rothe et al., 2005), the theoretical orientations of the NL model focus on the client-horse interaction as a burgeoning, unique, and real relationship. Clients as they interact and start to try and build a relationship with their horse tend to re-create the patterns of interaction that they are familiar with in their lives. In contrast to humans, who have the potential for manipulation, or to other kinds of animals often employed in AAT, who demonstrate unconditional acceptance no matter what the client’s actions, horses will be straightforward in their interactions. Consequently, the client must take responsibility in building the relationship and their contributions in the process, both good and bad.

The NL model differs from other forms of EAP in the use of mounted work. Some EAP orientations, such as EGALA, feel that mounted work and riding do not build the therapeutic relationship. However, the NL model considers mounted work a natural progression in building a powerful relationship with the horse, and that not moving forward could impair the bond. Although EAP may require balancing roles as a psychotherapist and as an instructor, clinicians should not focus on the progression of riding skills, as it may hinder the therapeutic rapport. It should be clear to the client that sessions are about therapeutic work (Ewing et al., 2007; Karol, 2007; Rothe et al., 2005). The NL model is explicit in the aim that mounted work is to facilitate the therapeutic process, and not to teach riding lessons or horsemanship.

The NL model views mounted work and riding as an essential component to a neurosequential trauma-informed intervention. The NL model uses a framework guided by the ChildTrauma Academy's Neurosequential Model of Therapeutics ("ChildTrauma", n.d.). Although not a particularly type of therapy, this orientation aims to integrate neurodevelopment and traumatology to "match the nature and timing of specific therapeutic techniques to the developmental stage of the child, and to the brain region and neural networks that are likely mediating the neuropsychiatric problems" ("Neurosequential Model", n.d.). This model postulates that neural network organization depends on the pattern, frequency and timing of experiences during development with healthy, patterned experiences creating functional organization and chaotic, unhealthy experiences creating delayed, dysfunctional organization (Perry, 2006;

Perry & Pollard, 1998). Therefore, therapy must be sensitive by addressing the systems that have either abnormally developed or underdeveloped with “patterned, repetitive, sensorimotor activities, which provide these brain areas with the patterned neural activation” needed for the brain to reorganize (Perry, 2009, p. 252). These neurologically informed treatments for trauma might incorporate music, movement and patterned breathing to help the brainstem regulate with safe, predictable, repetitive sensory input (Perry & Hambrick, 2008). The NL model postulates that the movement inherent to being on a horse can provide this rhythmic, repetitive, bilateral stimulation. Although testing of these models are still in their infancy, preliminary research is accumulating suggesting bilateral alternating sensory stimulation may help ameliorate negative effects of children who have suffered abuse and neglect (Pearson, 2009; Perry, 2009; Perry & Hambrick, 2008; Perry, 2000).

In addition, one of the core tenets that guides the NL model is called Relationship Logic. In Relationship Logic, the client chooses a horse with which to engage in a relationship or they may pick one they must teach about relationships. Clients may vastly differ on how quickly they select their horse, and this preliminary process can provide observational insights for the therapist, thus facilitating subsequent interactions with the client. The client will choose a horse that has some familiar, and hence comforting, aspect of behavior of either themselves or of significant others with whom they interact. The NL model does not instruct the client on how to build the relationship with their horse at first. Instead, the client is encouraged to organically interact in the way they

think is best, and the client usually creates problems in their relationship that reflect their daily experiences in other affiliations. Once the client acknowledges the problems in the relationship, and especially the ones they may have contributed, the therapist and equine specialists instruct the client on better ways of building a bond. These include natural horsemanship techniques, which teach the horse to respond to the least amount of pressure needed.

As this example illustrates, the NL model makes use of good principles of horse psychology that transfer directly to human psychology. Thus, the tenets of natural horsemanship can also be effective in human relationships, as well as with horses. (i.e., when interacting in the context of building a good relationship, one should use the least amount of pressure possible to get the response requested from the other.) This example also assumes that in the context of a positive, loving relationship, you only make requests that are good for both parties involved. If the request is resisted, you ask again utilizing the same amount of pressure till the other complies. This can be difficult for many people because their first instinct when a request is not complied with is to reiterate it more forcefully or to give up. Hence, this takes some self-control on the part of the requester to maintain the initial level of pressure when repeating the request. The NL model feels that resistance demonstrates a search for the right answer. However, if someone is ignoring a request (either human or horse), then they are basically saying they are desensitized to the pressure that is being directed at them. If the request is ignored, you increase the pressured applied, increasing it by the smallest amount possible (and

moving up incrementally) until another response is received. Once the requested response has happened, the pressure should be immediately released to help reinforce the connection that the way to release the pressure is to comply. A key part in this model is consistency. If the person making the request is asking for something that is not good for all parties or does not follow the prescribed responses, it can damage and set back the relationship. Again, these same principles that grow the horse-human bond may transfer to other relationships to encourage healthy growth.

A key aspect of the NL model is that the client learns to find his or her own safety in situations and relationships. The NL model does not dictate or enforce hard rules, as it wants the client to be able to take responsibility for his/her own physical and emotional safety. Clients interact with the horse and receive natural consequences (within reason) in return, depending on their actions. In this way, the client learns how to keep him/herself safe in his/her relationships, and can see what happens when s/he does not. This can help the client trust him/herself to choose and make appropriate decisions about their safety in subsequent relationships.

The major mounted activity in the NL model is called Rhythmic Riding. Rhythmic Riding sessions begin with psychoeducation about physiological responses to stress and how to augment these reactions. The NL model incorporates techniques such as heart rate biofeedback, progressive muscle relaxation, mindfulness, and deep breathing. In the Rhythmic Riding session, clients are encouraged to ride around the edge of the arena (usually in rhythm to the music) and not to allow the horse to stop or

wander to the middle. This can be a difficult task, even for those who are well-regulated. The horse will respond to a client that is hyperaroused or dissociative by doing what it wants (i.e. going to the center or the gate). These instances can provide opportunities for the dysregulated client with help from the therapist and the techniques mentioned above, to regain control and regulate physiologically when faced with a stressful situation. The feedback from the horse's response lets the client face the immediate consequences of his/her emotions, as well as a chance to practice regulating them. Trotter et al. (2008) illustrates the NL model principles when describing horse activities that let clients improvise but encourages them to ask for what they need as:

These actions needed to be initiated by the participants; therapy team members, by not rescuing participants from their frustration, resisted the temptation to enable helplessness. Providing support and encouragement while allowing participants to struggle through a challenging task provided a heightened sense of accomplishment for participants (p. 265).

As the client practices and becomes more proficient in regulating his/her behavior, positive interactions reinforce these skills and hopefully transfer into other relationships outside of EAP.

Rhythmic Riding also incorporates Relationship Logic principles that the client uses in groundwork with their horse. Again, using the least amount of pressure needed in order to communicate is a key point. The parts on the body of the horse where the rider's legs have contact are more sensitive than the human fingertip, thus making it possible for

the horse to react to pressure or movements that the rider may make unconsciously (Saslow, 2002). Therefore, when the client is on the back of their horse, s/he needs to make sure s/he are regulated and communicating effectively, both psychologically and physiologically, in order to build the relationship positively.

The NL model of TF-EAP could be an effective experiential therapy to help improve multiple domains of functioning in traumatized youth. Being on the back of a horse—and its inherent rhythmic, patterned, repetitive movements—may help reorganize the connection in the traumatized brain. Children and adolescents may be able to passively self-regulate until they are able to do so more actively and independently. This may help facilitate the therapy process as “many clients are unable to do deeper, insight-oriented therapeutic work until they are able to bring their level of arousal to a place that allows them to gain and retain insight benefited from higher level learning” (Natural Lifemanship, n.d.). Once able to function in the higher, more logical areas of the brain, the client can work more effectively on other impaired areas of functioning.

CHAPTER III: Methodology

Participants

This study used a convenience sample of 15 children and adolescent clients who attended TF-EAP sessions at a ranch near Austin, TX. The ranch is a not-for-profit organization that focuses its services towards children who have emotional and behavioral problems due to severe abuse and/or neglect. Many of the clients have been adopted, were in the foster care system, or have been placed with relatives after they were removed from their parent(s). All had experienced severe interfamilial and interpersonal trauma, abuse, or neglect. The participants were assessed by the organization's clinical director at the start of treatment, and then again after six months of sessions. There were 4 females and 11 males in the sample group. Their ages ranged from 7-17, with a mean age of 11.13 (± 3.11). The sample contained 12 Caucasian participants, 2 Hispanic participants and 1 Asian participant. Participants all had various DSM-IV-TR Adjustment, Anxiety or Mood Disorders with diagnoses including PTSD, Oppositional Defiant Disorder, Disinhibited and Inhibited Reactive Attachment Disorder, Attention Deficit Disorder, and Bipolar Disorder.

Treatment

The beginning individual/family sessions after initial intake started with familiarizing the client (and parents/caregivers) to the ranch and the horses. During these

visits, the therapist may describe the horses' perceptions and herd mentality. The client is asked to observe the horse and look for differentiations in body language and speculate on what it may be communicating. Specific behaviors, such as if a horse feels threatened, and how these may feelings may materialize behaviorally, such as a horse putting their ears back, are reviewed. Aspects of personal responsibility and safety at the ranch are discussed, including possible outcomes of the client being able to choose how and when to move forward in the relationship with their horse. Subsequent individual/family sessions alternated between interacting with their horse using relationship logic principles in smaller pens and doing Rhythmic Riding activities in the arena. Some clients also attended additional weekend Rhythmic Riding-only sessions. The minimum number of overall sessions attended was 16 and the maximum was 42 ($M = 26.8$, $SD = 8.4$). Licensed mental health professionals carried out sessions along with an equine specialist certified in the NL model.

Research Instrument

The measure selected for outcomes in this study was the Child and Adolescent Functional Assessment Scale (CAFAS). The CAFAS is a measure to assess multiple domains functional impairment, defined as the degree to which problems interfere with functioning in various life roles for youth and their caregivers (Bates, 2001). It is one of the most commonly used measures for youth with emotional and behavioral disorders. A majority of states have mandated the use of the CAFAS on a statewide basis for youth

within the public mental health system (Hodges, Xue, & Wotring, 2004a; Bates, 2001). Numerous studies have analyzed intervention outcomes for youths with severe disturbances using the CAFAS (Roy, Roberts, Vernbert, & Randall, 2008; Hodges, Xue & Wotring, 2004b; Hodges, Doucette-Gates, & Liao, 1999; Hodges, Wong & Latessa, 1998). Strong evidence supports the psychometric properties for reliability and validity in the CAFAS, specifically in construct, concurrent, and discriminate validity (Hodges & Wong, 1996). Additionally the CAFAS has demonstrated clinical significance (Roy, Roberts, Vernbert & Randall, 2008).

The CAFAS is made up of 8 subscales: school, home, community, behavior towards others, moods/emotions, self-harmful behavior, substance use, and thinking. The school scale captures the ability to function adequately in a group education environment. The home behavior scale measures the extent to which youth observe rules and perform age-appropriate tasks. The community behavior scale incorporates the youth's delinquent acts, respect for the rights of others and their property, and conformity to laws. The behavior toward others scale rates the youth's appropriateness of daily behavior. The moods/emotions scale reflects the youth's emotional life including anxiety and depression. The self-harmful behavior scale measures the youth's extent of coping without resorting to harmful behaviors or verbalizations. The substance use scale measures the extent of substance use and any disruptions it may cause. The problems in thinking scale encapsulate the ability for rational thought process by the youth. Each behavioral scale on the CAFAS is given functional impairment score from 0-30,

changing in increments of ten (Bates, 2001). A score of 0 signifies minimal or no impairment, meaning no disruption. A score of 10 is mild, suggesting significant problems or distress. A score of 20 is moderate, meaning persistent disruptions or major occasional disruptions of functioning. The highest score of 30 is severe, and means severe disruption or incapacitation. The total score combines all eight scales and can range from 0-240.

The clinical director of mental health services at the ranch is a certified CAFAS assessor. She performed the assessments based on clinical evaluation and knowledge of client's multiple domains. The CAFAS assessments were performed at various times depending on when the client started sessions. Assessments were completed online using the program Functional Assessment Systems Outcomes (Functional Assessment Systems, n.d.). An initial assessment was given and then a subsequent one was given after six months' time. Statistical Package for the Social Sciences (SPSS) output obtained from the online program was analyzed for this study.

CHAPTER IV: Results

The client's initial scores on the CAFAS ($N = 15$) ranged from a total low score of 40 to a high total score of 170 ($M = 105.3$, $SD = 35.8$). All participants had scores of 0 (meaning no use) on the substance use scale both at initial and follow up assessments so this scale will not be reported on. Two scales had scores that ranged from 10 to 30: home behavior ($M = 24.7$, $SD = 6.4$) and behavior towards others ($M = 20.7$, $SD = 5.9$). Initial scores on the remaining five subscales ranged from 0 to 30 with the following means and standard deviations: school behavior ($M = 26.0$, $SD = 8.3$), community behavior ($M = 4.0$, $SD = 8.3$), moods/emotions scale ($M = 20.0$, $SD = 9.3$), self-harmful behavior ($M = 6.0$, $SD = 11.2$), and problems with thinking ($M = 4.0$, $SD = 8.3$).

The client's six-month follow up scores on the CAFAS ($N = 15$) ranged from a total low score of 0 to a high total score of 110 ($M = 54.0$, $SD = 26.4$). The problems in thinking scale score was 0 for all participants at follow up. Three scales had scores that ranged from 0 to 20 with the following means and standard deviations: school behavior ($M = 15.3$, $SD = 8.3$), home behavior ($M = 12.0$, $SD = 7.8$), and moods/emotions ($M = 12.7$, $SD = 8.0$). The remaining three scales had scores ranging from 0 to 30 with the following means and standard deviations: community behavior ($M = 1.3$, $SD = 5.2$), behavior towards other ($M = 10.7$, $SD = 5.9$), and self-harmful behavior ($M = 2.0$, $SD =$

7.8). The difference from the initial total score and the follow up total score for each client ranged from 0 to 120 ($M = 51.3$, $SD = 31.1$)(See Figure 1).

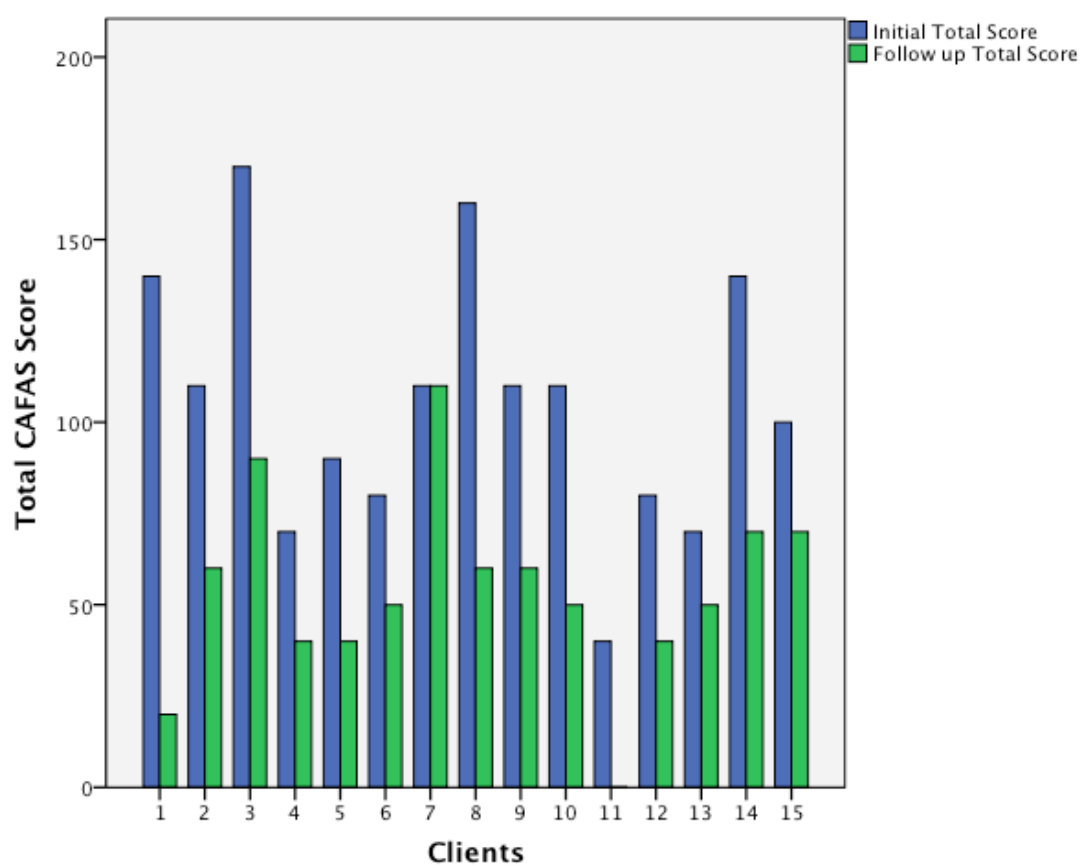


Figure 1. Client's Initial Total CAFAS Score and Follow Up CAFAS score

The Related-Samples Wilcoxon Signed Ranks Test found significant differences ($p < .05$) from initial assessment to follow up in the overall total scores, and in five out of the seven scales analyzed including school behavior, home behavior, behavior towards others, community behavior, and moods/emotions. The self-harmful behavior scale scores ($p = .19$) and problems in thinking scale scores ($p = .08$) were not significant (See Figure 2).

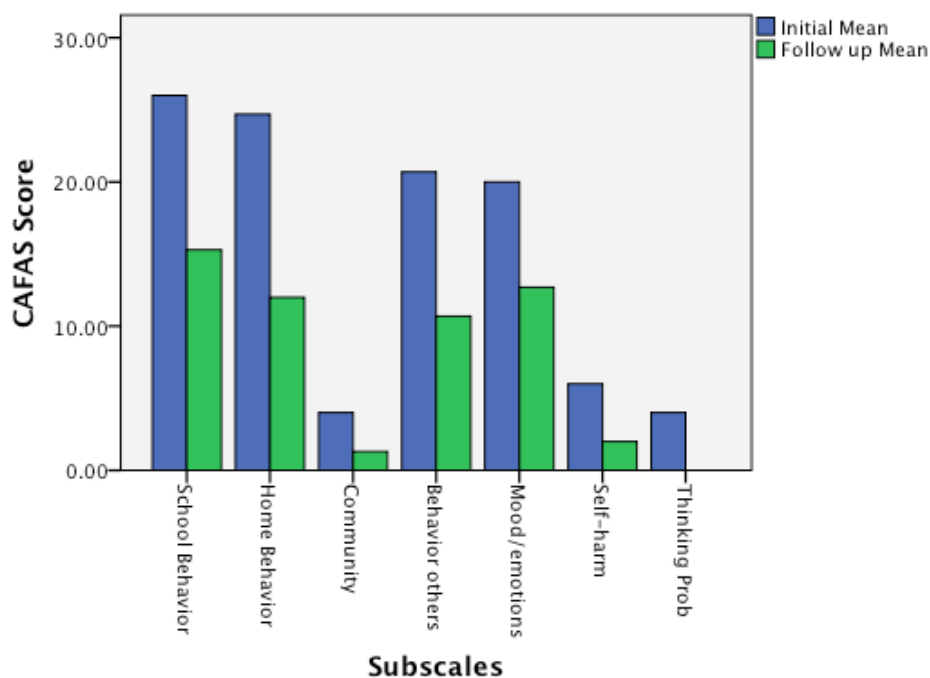


Figure 2. Initial CAFAS and Follow Up CAFAS Subscale Means

The research hypothesis posited that youth that participated in 6 months of TF-EAP would show significant change several domains functioning as captured by the CAFAS assessments. The data analyzed in the present study supports a significant transformation in subscale scores and the overall total scores. Only one participant out of 15 did not show any meaningful difference in overall score improvement. The majority of the CAFAS subscales demonstrated significant change from initial assessment to follow up including the scales for school behavior, home behavior, behavior towards others, community behavior, and moods/emotions. However the self-harmful behavior scale and problems in thinking scale did not show significant change from initial to follow up CAFAS scores.

CHAPTER V: Discussion

Conclusion

Complex and developmental trauma may negatively affect youth in numerous areas of functioning with enduring consequences. Treatment for this type of trauma may be difficult due to lack of EBT for specific diagnoses, which may not even properly capture the impaired domains of biology, attachment, behavioral control, cognition, and self-concept.

The CAFAS helps capture multiple areas of the client that can be affected by complex or developmental trauma. The NL model of TF-EAP attends to these areas in its interventions and works to help the client on important treatment theme such as safety, self-regulation, self-reflective information processing, traumatic experience integration, relations engagement, and positive affect enhancement (Cook et al., 2005). TF-EAP also addresses treatment issues for traumatic stress that are largely neglected, such as affect regulation and dissociation (Van der Kolk et al., 2005).

The results of this study contribute to the growing literature supporting EAP for youth who have experienced severe trauma. Research supports meaningful clinical significance with 20-30 point change in total CAFAS scores (Roy et al., 2008; Hodges, 2000). The analyzed data shows the vast majority of the sample (93%) had at least a 20 point difference and 80% of participants demonstrated a decrease of 30 points or more in

total CAFAS scores suggesting noticeable improvement. Thus, TF-EAP may have specific features particularly suited to address the needs of traumatized children and adolescents.

As previously mentioned, this study has several limitations. The research used a small, non-random, homogeneous sample. This restricts the generalizability to larger populations. Additionally, there may be inherent bias from the a non-independent clinician who performed the assessment ratings. The study's non-experimental design does not allow comparison to a control (or treatment as usual) group, so limited conclusions can be made about the changes demonstrated after TF-EAP. More comprehensive research of TF-EAP should help determine if it is an effective treatment for the full spectrum of psychopathology of complex and developmental stress.

Future Directions

Future studies should address variations in terminology in the field of HAI research, particularly when animals are involved in the psychotherapy process. In addition to specifying the terms used, researchers should provide rationale for their choices. Terminology should also be operationally defined so that it is clear what parameters and activities the terms actually encompass. This consistency of terminology will help in the replication of research, and amassing of findings on specific modalities and theories.

The initial scientific literature on the burgeoning field of EAP is compelling. However, more qualitative and quantitative studies are needed to support an empirical and practice-based approach to EAP. Research using a quasi-experimental design should be conducted with larger, culturally diverse samples. Direct comparison, possibly with matched samples, using traditional talk-therapy or other trauma-focused interventions is needed. The effect of various TF-EAP activities on specific impaired domains of functioning should be studied.

TF-EAP should also be compared to other models of EAP. As a control group, Trotter et al. (2008) suggests an equine-related placebo such as horseback riding (without psychological intervention) to determine if changes are due to EAP treatment or novelty features such as being outside. Because riding is an essential part of TF-EAP, another type of outdoor experiential therapy could be utilized as a control group. Furthermore, research demonstrating the specific neurobiological mechanisms activated during Rhythmic Riding could give quantitative data supporting specific theories of TF-EAP. Client and caregiver feedback from before and after sessions could be collected to better understand client's satisfaction with sessions and outcomes. Additionally, in-depth qualitative studies could provide researchers and those in the field a more complete understanding of inimitable features in TF-EAP.

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VITA

Amanda Katherine Kruger was born in Austin, Texas on June 9, 1982. She graduated from Stephen F. Austin High School in 2000 and attended the University of Texas at Austin. There she achieved Phi Beta Kappa membership and earned her B.A. in Psychology in 2004. During 2010-2012 she attended Texas State University-San Marcos where she received her Masters of Arts in Clinical Health Psychology. In the fall of 2012, Amanda entered the doctoral Counseling Psychology program at Our Lady of the Lake University in San Antonio, Texas, where she plans to obtain her PsyD.

Permanent Email Address: akkruger@aol.com

This thesis was typed by Amanda K. Kruger.