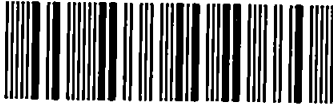


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The Effect of a Therapeutic Horsemanship Program on Emotionally Disturbed Boys

By

Alisa J. Greenwald, M.S.Ed.

REFERENCE ONLY

**A Doctoral Project Submitted in Partial Fulfillment of
the Requirements for the Degree of Doctor of Psychology
in the Department of Psychology at Pace University**

New York

2000

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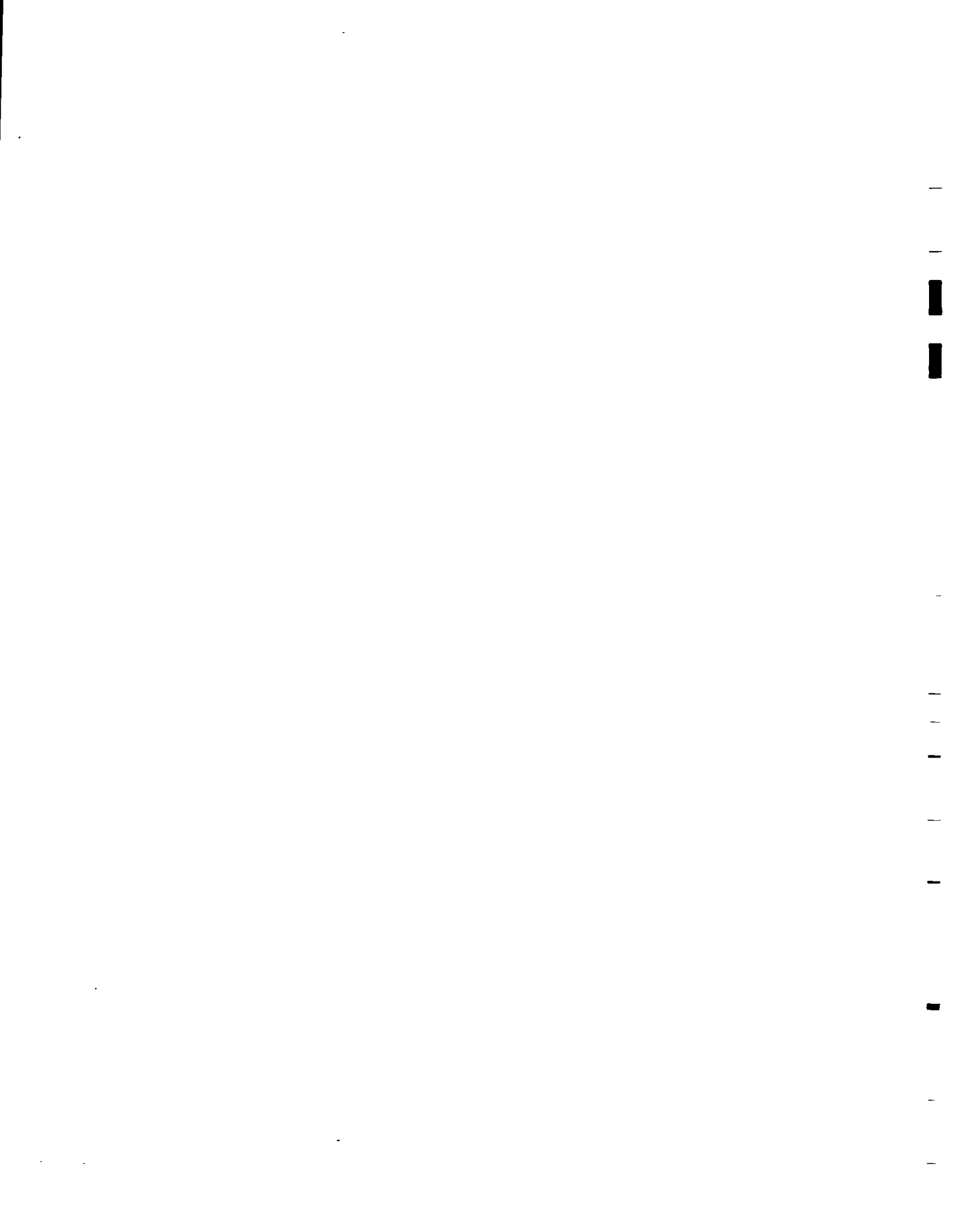
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Abstract

The relationships between humans and animals have been associated with various therapeutic implications. While there is no agreed upon name, the term "pet facilitated therapy" has become widely accepted. Pet facilitated therapy has been particularly adopted to describe the relationship between humans and domestic animals. In contrast to public attitudes of twenty years ago, the field of animal-human relationships is now respected as a legitimate area of research investigation (Levinson, 1982.) Numerous studies have been conducted on the benefits of the relationships between domestic animals and humans; however, there continues to be little empirical evidence that specifically addresses the relationship between humans and horses. Therapeutic horseback riding, a term which takes into account the relationship formed with the horse both while riding and on the ground, has been widely accepted among the professionals in the field. Despite this agreement, applied research in the field is needed to validate its apparent benefits.

The present study was developed to determine how a therapeutic horseback riding program can predict outcome on self-esteem, frustration tolerance, depression and anxiety. Participants were 81 emotionally disturbed males between the ages of 6-16 who were students in a residential treatment center. Results were analyzed using zero-order correlations and a series of setwise multiple regression equations. The results indicated that children who experienced a meaningful bond to a horse were more anxious and depressed. However, the bond with a horse did not significantly influence a child's self-

esteem or frustration tolerance. Children who were more involved in the horsemanship program tended to be less depressed and anxious. A child's self-esteem and frustration tolerance were not affected by their involvement in the horsemanship program. Children's conduct in the horsemanship program did not significantly influence their self-esteem, frustration tolerance, depression or anxiety. Implications of these results are for the therapeutic use of horseback riding as an adjunct or alternative therapy for emotionally handicapped individuals.

Chapter One

INTRODUCTION

Overview

The last couple of decades have witnessed a growing trend into the ways in which animals have been used creatively to benefit human beings. Animals used in this capacity are often referred to as companion animals or pets and offer special or unique qualities far beyond the parameters of simple recreation. Animals have demonstrated time and time again their therapeutic value for handicapped individuals. A well known example of this, is the use of guide dogs as therapeutic aids for the blind. More recently, horseback riding centers have emerged which stress therapeutic horsemanship as a special relationship between man and animal. Interest in the therapeutic benefits of the relationship between animals and human beings has grown in the recent years and is now known as "pet facilitated therapy" (Carlson, 1983). Equine therapy centers around the country have benefited people with serious ailments such as cerebral palsy, paralysis, autism, brain injury as well as social and emotional problems (Lambert, 1999). While this area is now gaining wider acceptance among professionals, it lacks the range of empirical research which will substantiate its contribution as a therapeutic adjunct to more traditional psychotherapies.

CHAPTER TWO

Review of the Literature

The following review of the literature is divided into five areas. The first will address the benefits of various types of physical exercise on individuals psychological well being. The second area will include a review of attachment literature as it pertains to the bond between an individual and animal. Next an overview of the benefits which animals provide in the therapeutic process will be discussed. The fourth section will discuss pet-facilitated psychotherapy. Finally, the last area to be discussed will include the benefits associated specifically with therapeutic horsemanship.

Benefits of Physical Exercise

The benefits of exercise and physical fitness have long been emphasized and well established. The physiological, interpersonal, behavioral, and cognitive domains have all been affected positively by physical fitness (Carlson and Ardell, 1981) and some researchers believe that improvements in physical functioning will positively affect the overall functioning of an individual. The use of physical fitness is known to help children, as well as adults. In children, physical fitness is a good starting point for intervention because it is concrete and socially acceptable, thus allowing the child to set realistic goals (Carlson, 1982).

Interest in the psychological benefits of exercise and physical activity has dramatically increased over the past two decades. Out of this interest The Exercise and Sport Psychology Special Interest Group was formed within the American Psychological Association (APA) during the 1982 APA convention held in Washington, D.C. (Brown,

1986). Although claims have been made among the lay community for the mental health benefits that can be derived from exercise, they at times seem to exceed sound empirical research. There is little substantial evidence regarding the correlation between physical exercise and emotional well being, however, there is a rationale between the two. The majority of the studies conducted reflect a positive outcome due to the benefits of exercise. While these studies exist, some researchers attribute positive results to other mediating factors, such as distraction from life stressors. Other studies in the literature illuminate some evidence that increased level of physical activity is beneficial for mental health. There exists a greater body of literature on the impact of exercise on adults and those individuals with specific psychiatric disorders than that of children (Brown, 1986).

Exercise and Adults

In the literature there are many studies which have looked at the benefits of physical exercise with adults and individuals with mental disorders. There is a lack of empirical evidence to substantiate the relationship between exercise and mental health in patients with psychotic disorders. One such study conducted by Faulkener and Sparkes (1999) looked at three individuals who were diagnosed schizophrenics. The study set out to determine the outcome of an exercise program as a form of therapy over a ten week span. After two weeks, the patients experienced reduced auditory hallucinations, an increase in self-esteem, improved sleep patterns and general behavior. The researchers suggest that exercise may have be seen as a distraction to life stressors, as well as a means of fostering social interaction amongst these individuals.

Another study conducted by Yagi, Kinoshita & Kanba (1992) examined the relationship between exercise and mental health in a London hostel. In this shared housing facility twenty-one people resided with histories of homelessness and mental illness. Faulkner directly asked individuals about their experience proceeding their exercise. When asked about hearing voices, one man's response indicated that while he exercised not only did the voices lessen, but he felt less stressed as well. These beneficial effects of exercise lasted two to three hours after exercising. The authors concluded that the exercise showed to be a coping strategy for individuals with schizophrenia. The exercise proved to be a distraction, as it took the attention away from voices. Another interesting effect of exercise was the promotion of social interaction among the schizophrenic patients. Though the interaction with the community was limited, there was an enhanced social interaction within this small identified community.

When looking at the long term effects of the study by Yagi, et. al. (1992), the records at the hostel revealed that once the exercise program terminated, the mental well being of the population within the hostel deteriorated. This study illuminates the evidence to support the theory that exercise should be used to help individuals with schizophrenia cope with symptoms such as hearing voices, depression, low self-esteem, and social withdrawal. Exercise helped to alleviate these symptoms, thus possibly improving patients overall quality of life (Faulkner and Sparkes, 1999).

Boscher (1993) conducted a study which investigated the effects of a running program with mood-disturbed psychiatric inpatients. The study had two intended purposes. The first was to look at the effect of physical exercise on depression, while the other was to investigate a number of aspects that are supposed to improve as a result of

exercise, such as self-esteem, well-being, and body satisfaction. Participants in the study were 24 18-52 year old patients who had been hospitalized in a psychiatric ward. While the results of the study supported the view that running is an effective treatment for depression, the results further indicated that increased self-esteem occurred for both the depressed and non-depressed patients and therefore was not directly attributed to the depressed group.

Another study consisted of a 10 week exercise program with nine 20-40 year old individuals with mental illness. All participants had psychiatric histories, were pre-screened and referred by psychiatrists. Most of the participants were in poor physical condition, which subsequently lead to more progress in the program. Results of the study indicated that there was an overall positive outcome for those individuals with mental illnesses such as an increased social contact and an improved physical fitness (Skrinar, Unger, Hutchinson, & Faigenbaum, 1992).

In 1984, the National Institute of Mental Health held an exercise and mental health workshop. They formulated the following consensus statements:

- “ 1. Physical fitness is positively associated with mental health and well-being.
2. Exercise is associated with the reduction of stress emotions such as state anxiety.
3. Anxiety and depression are common symptoms of failure to cope with mental stress, and exercise has been associated with a decreased level of mild to moderate depression and anxiety.
4. Long-term exercise is usually associated with reductions in traits such as neuroticism and anxiety.

5. Severe depression usually requires professional treatment, which may include medication, electroconvulsive therapy, and/or psychotherapy, with exercise as an adjunct.
6. Appropriate exercise results in reductions in various stress indices such as neuromuscular tension, resting heart rate, and some stress hormones.
7. Current clinical opinion holds that exercise has beneficial emotional effects across all ages and in both sexes.
8. Physically healthy people who require psychotropic medication may safely exercise when exercise and medications are titrated under close medical supervision.”

These consensus statements, when looked at collectively, suggest that many affective benefits are associated with both acute and chronic physical activity. The idea of an exercise euphoria or high was not mentioned in the conference, therefore other explanations for improvements in affective states are suggested (Morgan, 1985).

The conception of exercise induced change, has been disputed. It is unclear whether the exercise per se improves anxiety, depression and self-esteem. There is some evidence that improved affect is not caused by the physical activity, but rather these altered states are only associated with the exercise. This research has led to a number of plausible explanations for the common observation that improved affective states accompany both acute and chronic physical activity. One of the explanations, the distraction hypothesis, proposes that a diversion from stressful stimuli plays the crucial role in what some investigators have come to understand as exercise-induced affective change. Another explanation, the monoamine hypothesis, suggests that alterations in brain monoamines, particularly norepinephrine and serotonin, mediate the affective changes

associated with exercise. Current research has been directed toward the endorphin hypothesis which examines the role of B-endorphin/B-lipotropin activity in the production of exercise-induced affective change. Each of these hypotheses compete for attention. While the evidence for the endorphin hypothesis is equivocal, there is a possibility that the hypothesized mechanisms act in a synergistic manner (Morgan, 1985).

The Effect of Exercise on Depression and Anxiety

As with many of the studies looking at the effects of exercise, much of the research examining exercise and depression has been plagued by methodological problems. Many studies used very small samples, did not use control groups, and/or did not use random assignment. In addition, often the participants undergoing the exercise treatment were concomitantly being treated pharmacologically. Much of the research has led to conflicting results. Some studies indicated that aerobic gains were necessary to alleviate depression, while others concluded that anaerobic exercise was just as effective (Craft & Landers, 1998).

Clinical depression is characterized by feelings of despair, sadness, low self-esteem, pessimism, hopelessness and is sometimes related to significant loss. Symptoms range from minor fatigue, irritability, indecisiveness and social withdrawal to the most severe expression of depression, suicide. Using exercise to treat or prevent depression is very practical because of the activeness that accompanies exercise which provides side effects of increasing feelings of self-worth. Among the literature, studies showed significant improvements in mood states, particularly when the depression was higher than normal prior to training. The antidepressant effect of exercise therapy is greater if a

patient's therapist uses traditional psychotherapy in conjunction with exercise and if the therapist ensures that the patient views the exercise experience in a positive light. Despite these positive outcomes, methodological problems preclude definite conclusions (Sime, 1984).

In a study conducted by Craft & Landers (1998), the effect of exercise on clinical depression and depression resulting from mental illness utilizing meta analytic techniques was employed. The hypothesis stating that aerobic and non-aerobic exercise would alleviate clinical depression was supported. Running produced the largest effect size, however this effect was not different from the effect produced by non-aerobic exercise. The second hypothesis stating that those individuals who were initially more depressed would benefit most from the exercise was also supported. The moderate to severely depressed group produced the largest effect size which was significantly different from that of the mild to moderate depressed group. The final hypothesis which predicted that exercise would be as beneficial as traditional forms of treatment, such as psychotherapy, are more effective than behavioral interventions. In other words exercise was found to be as effective as group or individual psychotherapy and similar to other behavioral interventions.

As with the effect of exercise on depression, the effect upon anxiety has been of interest to researchers. Studies on the effect exercise has upon anxiety has been supportive of the notion that exercise of an appropriate level, duration and frequency reduces state anxiety (anxiety which arises out of a particular situation) for a period lasting anywhere from 30 minutes to several hours after the exercise. The general consensus among reviewers, however, is that the evidence is inconclusive because of methodological

and design problems. More specifically researchers state the exercise must be sufficient to elicit sustained heavy breathing without pushing to exhaustion for at least 20 minutes and up to 2 hours depending on the individuals tolerance and the exercise should be at least 3 times per week (Sime, 1984).

Children, Adolescents and Exercise

There is a growing awareness in advanced industrialized societies that physical activity can make a significant contribution to physical and emotional health promotion and disease prevention. However, despite the widely held belief that health promoting behaviors should be initiated in childhood, the research efforts have concentrated primarily on adults. Consensus statements from the National Institute of Mental Health (NIMH) concluded that with regard to children a) exercise is associated with reduced state anxiety; b) exercise is associated with decreased levels of mild to moderate depression; c) long-term exercise is associated with traits such as neuroticism and anxiety; d) exercise may be used as an adjunct to professional treatment of severe depression; e) exercise results in the reduction of stress; and f) exercise has beneficial effects across all ages in both sexes (Biddle, 1993).

One of the studies which looked at the benefits of physical exercise for children was conducted by Scherman (1989) who surveyed the literature and found that several studies demonstrated personality changes as a result of physical fitness in children. He found that in elementary-aged children, exercise as an intervention strategy has not typically resulted in improved physical fitness nor greater self-esteem. He did find however, that when children of this age were exposed to a group centered experience,

physical activity was associated with establishing an internal locus of control and increasing their self-concepts. Thus, these studies supported the idea that self-concept is situation specific.

Seidel and Reppucci (1993) discussed the pros and cons associated with youth sports. The overall negative outcome was the emphasis on winning and placing children in predetermined roles. The positive characteristics included peer interaction and the children would obtain social validation for self and the development of desirable traits such as cooperatives and leadership. Children can acquire social, physical skills and promote emotional disturbance through engaging in sports. One such study that exemplifies the benefits of sports included 232 boys between the ages of eight to ten years old. They participated in either soccer or baseball tryouts or recreation. The results were that regardless of the level of competition there existed a positive impact on nine year old boys. From pre to post season self-perceptions were more positive, parents scored children as having an increased competence of social skills, leadership and obedience.

A positive self-concept is an important element in meeting every child's need to belong and to feel respected by himself and others. Developing a positive self-concept may not be as easy for a handicapped child. For these children factors such as the amount of control and the influence he can exert over his environment and his ability to have meaningful relationships with others play an important role in the development of positive self-concept. Through participation in sports or physical recreation the child has the opportunity to master new skills, to experience increased freedom of movement and to have fun with other children and adults. This experience allows the child to have some control over his environment and to form supportive relationships with others, both of

which should foster a positive self-concept (Stewart, Moretti, O'Connor, Kates & Doyle, 1991).

Stewart, Moretti, O'Connor, Kates & Doyle (1991) conducted a study where participants were physically disabled children aged 7 to 12. All of the students were involved in sports both in an organized way in the school and casually with family and friends. Almost one quarter of the children had been involved in a riding program. Overall the children reported a high level of self-worth and perceived themselves as moderately competent athletes. The authors stated that they were still unclear of how the involvement in riding or other sport helped the child develop a positive self-concept. However, this study did provide some descriptive evidence which supports such an association.

In a review of the literature Gruber (1986) found that in 53 of 65 studies claimed that play and physical activity contribute to improvement in the affective domain. More specifically studies supported the position that directed play and physical education programs influence the development of self-concept in children. Children who were mentally handicapped, emotionally disturbed, perceptually handicapped and economically disadvantaged showed greater gains in overall self-concept than in normal children. An noted observation was the importance of specific activities to self-concept changes. Physical fitness and aerobic activities produced greater results in improving self-concept than learning sport skills or creative and perceptual-motor activities (Gruber, 1986).

Sports camps have been found to have a positive effect on elementary school aged children's self-concept. Bowsby and Iso-Ahola (1980) reported improvement in the self-concepts of children who were involved in competitive leagues, as compared to children

who were recreational players. For children who went to sports fitness camp, Duke, Johnson, and Norwicki (1977) reported significant changes from an external locus of control to an internal locus of control. Scherman (1989) suggests that counselors can incorporate physical activity as a therapeutic intervention tool in various ways. He states, as students participate in the physical activity, they will develop social skills within a pleasant non-threatening environment and thus expand their social network.

Jogging was used to reduce disruptive behaviors in learning disabled boys.

A class of 12 boys were involved in a program of jogging at the beginning of the day before beginning their normal academic program. The study found that the fewest behavioral problems occurred in the hour immediately following jogging, and that overall daily behavioral disruptions were reduced by one half (Allen, 1980).

Teenagers are another population in which studies on physical exercise have been conducted. Athletics provide a teen with opportunities to enhance physical well-being and physical development. Learning sport skills provides an opportunity for adolescents to master a task, develop positive, intimate relationships with peers, and gain freedom from parental objects. Sports provide an alternative to psychotherapy for emotionally disturbed adolescents who do not benefit from traditional methods. Due to the lack of verbal communication skills which are the primary mode of interaction in psychotherapy, a therapeutic program of sports provides a beneficial alternative. Adolescents from an out-patient psychiatry clinic were chosen to participate in the alternative mode of sport therapy. Two groups consisting of eight males and eight females ranging from twelve to sixteen years old participated in bowling, swimming, boxing, golf, football, and tennis. The results of this study indicated that sports became an outlet for emotions to be

expressed, ranging from feelings of happiness to loneliness. The group setting also acted as a stage to learn from one another. The implications of this study are that communication can occur through sports, such as wishes, power, anger, frustration, compassion for an opponent, affection, loss and loneliness. Furthermore, a sense of security, purpose, fun, expressiveness and more independence arises due to sports (Dozier, Lewis, Kersey, & Charping, 1978).

For the junior and high school aged children, Scherman (1989) found that perceptions of physical fitness were found to correlate with self-concept more than actual physical performance. When Scherman looked at self-concept between athletes and non-athletes, he found that athletes had higher self-concept scores than did the non-athletes. Additionally, he cited a study which found that self-image improved in introverted junior high school students when they engaged in increased physical exercise.

Bonding

In Bowlby's theory it was proposed that all human infants, however they are treated, become attached to those persons who care for them. The actual quality of the attachment can vary depending on the quality of care which the infant experienced. The quality of the attachment influences the child's later development. This is because in the context of the developing relationship, the infant forms initial expectations concerning himself and others or what Bowlby called inner working models. This working model concerning the availability of others and in turn, the self, as worthy or unworthy of care, provide a beginning context for future transactions with the environment, especially social relationships (Bowlby, 1980).

Another interesting area of study is understanding how early development influences later development. As Bowlby and Ainsworth describe it, a secure attachment is an emotional relationship with a specific figure which is characterized as feeling safe and protected in the presence of that person and by feelings of longings and the desire to have contact with that person when that person is missing. What makes these attachments instead of friendships is the emotional core of felt security and perceived protection from danger in the presence of the attachment figure. With this in mind, disorders of attachment can be defined as distortions in the parent-child relationship that result in the baby's inability to experience the parent as emotionally available to protect him from internal distress or external danger (Lieberman and Pawl, 1988).

Disorders of Attachment and their Treatment:

While it is not possible to discuss the vast abundance of literature on attachment in this paper, a brief description on the disorders of attachment warrant attention. The disorders of attachment may be classified under three major categories including: nonattachment, anxious attachment and disrupted attachment. In nonattachment infants are reared with no opportunity for forming emotional connections with other human beings. Their development shows impairment in interpersonal relationships, cognitive functioning, and impulse control and the regulation of aggression. Infants who formed anxious/ambivalent attachments have been able to form a focused relationship with a preferred partner, but whose attachments show an unusual amount of conflict regarding the perceived physical and emotional availability of the attachment figure. In the disrupted attachment the child has experienced a premature and prolonged separation from his/her

attachment figure : and therefore loss is experienced as a permanent separation (Lieberman and Pawl. 1988).

Bowlby's studies have made the concept of attachment a means of understanding many facets of interpersonal relationships. He considers attachment to be a unidirectional relationship which a person develops toward someone in his/her environment. A child who remains close to a familiar caregiver reduces the risk of harm. Bowlby considers attachment an innate element which under certain conditions, allows the individual to form ties that ensure basic trust, a secure base, rapprochement or a potential space (Cohen, 1997).

It is believed that on the basis of comprehensive developmental studies, the child's experienced environment as opposed to the family environment, determines both behavior outcome and the risk for mental disorder. Much of the research on attachment focuses on differentiation among various patterns of attachment. This omits the crucial factor that triggers the innate force of attachment: the primary care givers and their mode of activation. Attachment which is viewed as part of a dyadic relationship is based on Winnicott's concept which clearly indicates that unless "good enough mothering" exists, we cannot expect the various innate characteristics of the child to develop. Children who are unable to form any stable relationships live in a chaotic world, with a permanent sense of insecurity and lack of safety (Sandler, 1989).

The only way to help a child who has been unable to form any stable relationships is to try to reconstruct the primary contact that may initiate the immobilized attachment. This cannot be achieved within the framework of a family. Living within a family is unbearable for such children, for they are unable to differentiate between their own

movements or facial expressions and those of the people around him. Every expression becomes meaningless and demands a different way of relating. One must very gradually build a totally new and primary oneness with the child with a disregard for the various tasks, roles or assignments to be expected of a child his/her age. This complex goal must be achieved in the framework different from the family, namely residential treatment which is geared toward establishing these early attachment relationships. This occurs through a prolonged and constant relationship between the child and an adult, a relationship which slowly creates patterns of interaction unique to this child and adult. This is done through minute expressions, such as a smile which says that this moment belongs to them alone. Such a smile is the equivalent of the potential space Winnicott regards as the main tool for normal development (Cohen, 1997).

Residential treatment facilities claim to actually treat children, as opposed to foster care families where people train children to adjust to real life. Residential treatment is able to accept and contain severe behavior problems and perceive them as signs of striving for attachments. By doing so this treatment framework reacts to the deep rooted strivings rather than to the behavioral expressions. Once the child feels secure with new attachment figures, he will be able to relinquish negative behaviors (Cohen, 1997).

Human-Animal Bond and its Therapeutic Use:

Companion animals are viewed as a vital part of the healthy emotional development of children. As children develop, pets play different roles at each stage of development. Companion animals can foster the period of childhood where developmental tasks such as basic trust, self-esteem, a sense of responsibility and

competence, feelings of empathy toward others and the achievement of autonomy are acquired. The constancy of the animal's presence can help children move along the developmental continuum and may even help to inhibit mental disturbances (Levinson, 1970).

According to Robin, tenBensel, Quigley and Anderson (1983) a pet serves numerous functions for a child. The companion animal is an energetic playmate which facilitates the release of a child's pent up energy and tension. Children are generally less likely to be tense if they are physically active. The animal may also serve as a facilitator towards relationships with other children. The security of an animal may encourage exploratory behavior, especially to fearful children in fearful situations. The pet can be viewed as a substitute for human companionship for children living in situations without other children. Caring for a valued pet will promote a sense of importance and being needed as well as teach responsibility.

Animals facilitate people of all ages to feel safe and create a sense of intimacy. When people are paired with animals in a strange situation they tend to feel less threatened. For instance in an experiment where children were brought into a room with an interviewer alone or with an interviewer with a dog, the children were found to be more relaxed as measured by blood pressure when entering a room with the interviewer and an animal. The presence of an animal seems to have a relaxing and calming effect on people. This is further demonstrated when people talk to other people there is a tendency for blood pressure to rise, however, when people talk to or observe animals there is a tendency for blood pressure to drop (Beck and Katcher, 1983).

The attachment humans develop for pet dogs may be related to two qualities which are often seen in many dogs. The first is their ability to offer love and tactile reassurance without criticism. The second is their innocent dependence which may stimulate our natural tendency to offer support and protection (Corson, Corson, Gwynne & Arnold, 1975.)

The human-animal bond is viewed as similar to the mother-infant relationship described by Ainsworth, as an emotional attachment which occurs over time and has the power to affect human development (Poresky, 1997). According to Beck and Katcher (1983) as children get older, the pet acquires many of the characteristics of the ideal mother. The pet is loyal, unconditional, devoted, attentive and non-verbal which are all elements of the primary symbiotic relationship with the mother. From a developmental point of view, a major task of childhood is movement away from the primary symbiotic relationship with the mother and the establishment of a separate and distinct identity. This process of separation and individuation creates feeling of separation anxiety which occur particularly at stressful times of loss or during new experiences.

Pets function as transitional objects, particularly for adolescents. Pets are more socially acceptable as transitional objects for adolescents than the inanimate objects used by infants such as teddy bears. As transitional objects pets help children feel safe without the presence of parents. In this role pets can be a confidant, an object of love, a protector, a social facilitator or a status symbol. The bond between children and pets is enhanced by their animate quality. The crucial attachment behaviors of proximity and caring seen between children and pets forms an alive reciprocating alliance. This relationship is simpler and less conflicted than human relationships. Like other transitional objects, most

of the shared behaviors between animals and children are tactile and/kinetic rather than verbal. Pets may satisfy the child's need for physical contact and touch without the fear of the complications that accompany contact with human beings. Children have a great need for empathetic listening and association with others. It is the animal's empathy and passivity that makes them such good companions (Robin and ten Bensele, 1985).

According to Beck and Katcher (1983) pets can elicit maternal behaviors in children as young as three years old. Much of the usual interactions between children and pets resembles a parent-child relationship where the animal represents the child as an infant. Children unconsciously view their pets as extensions of themselves and treat their pets as they want to be treated. This process is what Desmond Morris has called "infantile parentalism" and suggests that this is one way in which children cope with the loss of their childhood. For instance Sherick (1981) presented a case of a nine-year old girl whose pets became symbolic substitutes for her ideal self. She cared for sick pets and nursed them back to health. These pets represented the cared for, protected and loved child that she longed to be. This girl's mother was vain and very concerned with appearances who turned most of her maternal pet rather than her daughter. The girl's behavior toward her pet was viewed as an unconscious attempt to model "good enough" mothering to her mother.

Children can involve their pets in their use of defense mechanisms such as displacement, projection, splitting and identification. At times children living in a dysfunctional family will become overly attached to a pet to the detriment of human relationships. These children have a distrust of human relationships which then becomes over-generalized. This basic distrust of human attachments contributes to the intense

displacement of attachment to a pet who is consistently receptive and a source of caring and love. By anxiously attaching to an animal the child can gratify part of the self without risking interpersonal involvement. Disturbed children with weak ego's will turn to their pets for warmth and caring to meet their regressed, insatiable need for closeness and love (Levinson, 1972).

Brickel (1986) cautions about two types of undesirable attachments between humans and pets. The first type is a pathological attachment to the animal, where the patient experiences inappropriate distress regarding separation from the animal and withdraws from people to be with the companion animal. The second type of problematic attachment occurs when a therapist uses an animal as an adjunct to psychotherapy with various patients. In this case the pet may form a strong attachment to the therapist and consequently will not interact well with other individuals. This can be avoided by rotating the person responsible for taking the pet around whenever possible.

More specifically, the therapeutic riding experience is based on the goals of each patient's needs, with a major emphasis on the horse-human relationship. The individual's bond with the horse has produced positive results as referenced by some therapists. Increased attention span, patience and responsibility are just a few of the benefits that occur (Lambert, 1999.)

Overview of the Benefits of Animals in the Therapeutic process

Handicapped individuals were probably the first to benefit from the organized use of animals as therapeutic aids. This was first noted with the introduction of guide dogs for the blind developed in Switzerland and Germany early in this century. Guide dogs are

now commonly seen and are invaluable in assisting the blind. More recently, dogs have been trained to aid the deaf, and to help those in wheelchairs by fetching and carrying (Curtis, 1981).

Wolfe (1977) looked at the use of pets as transitional objects in early adolescence. She found that certain young adolescents do use their pets in ways described for traditional transitional objects. She further added, that a highly adaptive function can be served by the use of a pet as a transitional object, especially when there is active meaningful involvement with other important individuals in the child's environment.

Human beings have long understood the physiological and psychological benefits of establishing relationships with animals. Horses and dogs, for example, make excellent companions for humans because they are, by nature, sociable and accepting of domination. Throughout history people have recognized the value of integrating animals into various types of medical and psychological therapies (Krawetz, 1993).

Pet-Facilitated Psychotherapy

Recently a new term, Pet-facilitated therapy (PFT), has emerged in our language. It originated as therapists discovered that pet animals could act as catalysts, or therapeutic adjuncts, in reaching the mentally ill. This discovery made it possible for the special bond between individuals and their pets to become the subject of newly respected scientific scrutiny (Curtis, 1981).

Today the general field of pet-facilitated therapy can be categorized into three types: milieu therapy, physical rehabilitation, and pet-facilitated psychotherapy. Of the three, milieu therapy is the most common. In this mode of therapy the animals are brought

into contact with people. The second type of pet-facilitated therapy, physical rehabilitation, is seen with individuals that are actively involved and participating in activities with the pets such as feeding, walking or grooming. Here, the participants are motivated to carry out tasks for the pets which call upon fine and gross muscle movement. The participants enjoy the program and are therefore more inclined to participate in them than in conventional rehabilitation programs. The third type of Pet-facilitated therapy is pet-facilitated psychotherapy (PFP). Here, an animal is used by a clinician or paraprofessional to enhance the usual therapeutic program. The animal may help to act as a link between therapist and client; to draw out verbal and emotional responsiveness; to facilitate social interaction for the client; provide a tactile source of comfort; build upon the client's inner resources; and/or generally enhance the client's quality of life. The totality of this PFP schema relies directly upon the remarkable ability animals have to draw out responses in people. It is up to the human therapist to capitalize upon this ability" (p. 311). (Brickel, 1986).

Based on clinical observations, Heiman (1965) takes a psychoanalytic perspective in suggesting that much can be learned about the emotional problems of a pet owner if the therapist encourages the patient to talk about his pet. An owner who has unconsciously identified with his pet will reveal himself in discussing the animal. The animal can meet unconscious needs by representing parents, children or significant others. Based on these benefits of a pet, Heiman will at times practice what he coined as "zoo therapy". In this therapy he suggests that self-supporting patients who are unable to live with another human being but at the same time too anxious to live alone, take in an animal to live with them. For people who have experienced traumatic separations, especially in early

childhood, often have reactions to situations of separation with regression in later life. These individuals readily accept an animal substitute for the loss of a human object. Heiman considers this particularly understandable in light of a child's closeness to a pet. He feels that pets play many special purposes for children. For example, he believes that during the latency years, the company of a dog can be helpful in leading a child through the trying oedipal phase into finding a secure identity.

Levinson's (1978) contributions to the field of pet-facilitated therapy is viewed as the largest and most prominent. He believes that personality development will be favorably influenced for individuals with pets or for those surrounded by animals who are significant in their lives, from those who do not have animals. Pets can be particularly important during middle childhood and old age. They allow one to experience a variety of feelings that may not have been evident in the past. When a pet arrives into a family, the dynamics among the family change and become more complex. Feelings of rivalry, possessiveness, and jealousy can emerge just as with the arrival of a new child. Children who become the "parents" for a pet may develop a realistic understanding of their own parents in terms of nurturing and discipline. The development of empathy, self-control, autonomy and self-esteem may be promoted in children caring for pets. A child who sees himself as the one who is depended upon rather than the one depending on others can foster a child's sense of responsibility and independence. Some parents can not overtly show their love to their child. A pet can provide some of the opportunities for overtly giving and receiving affection which the child needs for growth and personality development.

One of the first documented cases of the use of Pet-Facilitated Therapy for children with emotional disorders came from the work of Dr. Boris Levinson in the 1960s. Levinson used his dog named "Jingles" with children demonstrating emotional problems. While no empirical study was conducted, Levinson did observe some patients responding to the unconditional love provided by Jingles. Levinson noted that children with emotional problems are often mistrustful of humans. A situation is created where the animals provide a bridge between the child and therapist in which the child is less fearful of the rejection he or she may have experienced with humans in the past (Levinson, 1962).

To further explore Levinson's theory, Robin, ten Bensele, Quigley & Anderson (1983) conducted a study which looked at adolescents' perceptions of their pets. In the study questionnaires were administered to 13 to 18 year olds from either an urban or rural high school, an inpatient psychiatric ward, or two state training schools for delinquent youth. Major differences between the delinquent and non-delinquent youth included: 1) more than twice as many delinquent than non-delinquent youth said they talked over their troubles with their pets, 2) 61% of the hospitalized adolescents said that a pet provided someone to love, compared to 47% of delinquent youth and 29% of the public school students and 3) 26% of the youth felt protection was provided by their dogs. The authors suggested that good relationships developed between adolescents with behavioral and emotional problems and their pets which may substitute for their poor relationships with humans.

Brickel (1982) believes that Levinson's theory is too general to explain the specifics of how and why pets are viewed as therapeutic. He instead sites a learning orientation as an alternative. Brickel believes that pet animals diminish anxiety and

provide emotional support which is theoretically subsumed under an extinction model of learning, or more specifically that of a competing-response theory. He believes that an “attentional shift” aspect of competing-response theory may explain how pets are of emotional benefit in pet-facilitated psychotherapy. In this model, pets are viewed as diverting attention from an anxiety-generating stimulus which the individual may encounter. This interference allows for self-monitored exposure to the anxiety-generating stimulus. Continued exposure to the pets coupled with nonaversive consequences to the stimulus aids in the decrease or extinction of anxiety.

Katcher and Wilkens (1994) studied the effect of an animal assisted program on severely emotionally boys in a residential facility. The participants were boys between the ages of 9-15 at the Brandywine Treatment Center of the Devereux Foundation in Pennsylvania. Participants were diagnosed with Attention Deficit Hyperactivity Disorder and over half of them met the diagnostic criterion for Conduct Disorder and Oppositional Defiant Disorder. Children were assigned to one of two voluntary programs: either the experimental treatment called Companionable Zoo program or the control treatment which included an Outward Bound course. The Companionable Zoo program introduced the students to small animals such as rabbits, gerbils, hamsters, mice, chinchillas, iguanas, lizards, fish, turtles, doves chicks, goats and a Vietnamese pig. Results indicated that the animals immediately allured the child’s attention which lowered their level of physiological arousal, calmed the child and likely decreased irritable and impulsive behaviors. The children were uncertain how to respond to the animals which facilitated a space for the beginning of an educational and therapeutic dialogue. This experience also increases the social attractiveness of the therapist, fostering a safer arena to interact with the therapist.

In a study by Fields (1977), Pet Facilitated Psychotherapy was introduced into a nursing home. The animals were found to maximize social work outcomes, such as facilitating behaviors in preparation for independent living. Fields concluded that the basic interactions which occur between pets and people in institutional settings suggests that the introduction of a pet alters the social situation in such a way that the social interaction is enhanced.

In hospitalized psychiatric patients, pet dogs are believed to fulfill two important psychological needs: the need to love and be loved and the need perceive oneself as worthwhile both to oneself and others. The success of Pet facilitated psychotherapy is therefore based on the premise that patients may be able to accept the love of an animal before they can accept and give love to a human. Interaction with a dog helps a patient realize that there are limits within which he must behave in relation to the animal. The dog will respond to abuse by growling and showing other signs of displeasure. The patient then learns a lesson in reality testing. He learns that love and devotion require give and take (Corson, Corson, Gwynne & Arnold, 1975).

To determine the efficacy of pet-facilitated psychotherapy Corson, Corson, Gwynne & Arnold (1975) conducted a pilot study with hospitalized psychiatric patients who failed to respond to traditional forms of therapy, including individual and group psychotherapy, pharmacotherapy, electroshock therapy, occupational and recreational therapy. Patients selected were withdrawn, self-centered, and uncommunicative. After gradually introducing the dog to a patient the patient slowly began to take on more responsibility for the care of the dog. Many patients came regularly to the kennel to groom the dog. Some even began to run with the dogs outdoors which added some

physical exercise and emotional satisfaction to their daily routine. Eventually the assumption of responsibility of the dogs led to an increase in self-confidence and gradually changed them from irresponsible, dependent psychological invalids into self-respecting responsible individuals. Thus the dog began to serve as a catalyst for forming adaptive and satisfying social interactions. The circle of social interaction begins with the therapist who introduced the dog and eventually widens other patients and medical personnel within the hospital.

Beck, Seraydarian & Henter (1986) argue that despite the extensive literature on the use of animals as part of psychotherapy, there have been few studies using appropriate research design. Their study the Haverford study is cited as the first controlled study with preplanned measures of effectiveness. They proposed that animals would make the environment less threatening. Therefore psychiatric inpatients would attend group therapy sessions more regularly, participate more frequently and benefit from the therapy more room which contained birds than those who met without birds present. Twenty subjects living on the same unit were randomly assigned to two treatment groups. Results indicated that there was a greater rate of attendance and greater participation among the bird group than did the non-bird group

Daniel, Burke, and Burke (1987) point out five components that should exist in most animal assisted therapies. The first is that therapists must be educated on the special needs of the population with which they will be working. The second consideration is that therapists must be educated and trained to work with animals to avoid behavior problems and physical harm to recipients of the program. The third relationship which should exist is that staff of the animal facilitated program should consult with teachers and other health

care providers who work with the individuals receiving the intervention. Fourth, therapists need to be sensitive to the needs of staff members providing inservice training to further their understanding of the goals of the program. Lastly, therapists should be cognizant of the individual needs or limitations of their students in terms of their relationship with the animal (i.e.: allergies or fear of the animal).

While empirical studies are not available to validate the work with dissociative patients, Arnold (1995) found that using therapy dogs as an adjunct to therapy provided several observable benefits. In a support group for patients with dissociative identity disorder, a dog named "Lucy" provided a calming influence when calm was needed, alerted the therapist to patients in distress before it was overtly evident to the therapist, provided patients with their own guard dog and appeared to deliberately encourage communication and interaction among the group members. A dog named "Jean-Luc" apparently recognized switches in alters and appeared more interactive with some more than others. For some patients Jean-Luc served as a grounding facilitator and helped them come back to the here and now after very emotional sessions. Arnold noted that perhaps the greatest surprise in Jean-Luc's participation in individual sessions was the level of comfort and security she provided to the therapist. He served as another set of eyes and ears to help the therapist read patient's body language. At times he was aware of impending or actual personality shift before the therapist. Working with dissociative patients is exhausting and counter-transference issues can become complex and traumatic to the therapist. Here Jean-Luc's presence helped the therapist remain grounded and minimize the impact of the traumatic information relayed to the therapist.

Using the Companion Animal Bonding Scale, Poresky and Hendrix (1990) looked at the effects of pet's presence on children's' development. They suggested that animals may act as a catalyst through their stimulation and feedback for developmental changes in mental structures which may contribute to reorganization and advancement which is known in Piaget's theory as adaptation and decentration. Results showed that young children acquire developmental benefits associated with the quality of the children's interaction with their pets. These benefits for social development were found for social competence, cooperation, and empathy.

Hyde, Kurdek, & Larson (1983) explored the differences between college-age pet owners and current non-pet owners on self-esteem, social sensitivity, and interpersonal trust. They found that college-age pet owners had a tendency to have higher empathy and interpersonal scores than non-pet owners. This finding supports the research that pet ownership is beneficial.

Cruelty to Animals

Interest in cruelty to animals came from the notion that cruelty to animals has a negative effect on one's character development and may lead to cruelty among people (ten Bense, 1984.) Tapia (1971) noted from his review of the literature that no systematic study was available on children who are cruel to animals. An overall theme throughout the literature indicated that these children often had concomitant symptoms of aggressiveness to younger sibling and smaller peers, fire setting, interest in sex, hoarding, enuresis, problems with learning, bulimia, and indifference to pain. He found associations between animal abuse, child abuse, and antisocial behavior. Of the 18 young boys who

were identified with a history of cruelty to animals, one-third had also set fires. Among these boys parental abuse in the forms of neglect, brutality, rejection, and hostility was the most common etiological factor.

In a study by Hellman and Blackman (1966) 33 of the 36 prisoners studied had a history of enuresis past age 8 and for 70% the trait persisted into their teens. Enuresis was found to be accompanied by other forms of acting out behaviors; two particularly severe forms were fire setting and cruelty to animals. The child is viewed to move from phantasies of destruction through the act of voiding to the active destruction of fire with its magical omnipotence and then to direct violence against good animals, animals which were accepted by adult figures where the child was not. In this study, 74% of those committing violent, aggressive crimes had a history of the triad, as compared to the triad existing in only 28% of those committing no violent antisocial acts. The consequence of this childhood pattern is seen as one of aggressive violent behavior towards society. The authors therefore suggest that the presence of the triad in the child may be an important predictor of violent antisocial behavior.

Felthous (1980) found that Hellman and Blackman's behavioral triad did have predictive value for later criminal behavior. He also found extreme physical brutality from parents common, but felt that parental deprivation rather than parental aggressiveness to be more specifically related to animal cruelty.

A study by Kellert and Felthous (1993) found that among the 152 criminals and non-criminals in Kansas and Connecticut, a large number reported cruelty to animals among the most violent criminals. Among the most aggressive criminals, 25 percent had five or more specific incidents of cruelty to animals. This is in comparison to less than six

percent of moderate non-aggressive criminals and no occurrence among non-criminals. Among the most aggressive criminals, 75 percent were found to have experienced excessive and repeated parental abuse as children, compared to 31 percent for non-aggressive criminals and 10 percent among non-criminals. Of further interest, 75 percent of non-criminals who experienced parental abuse also reported incidents of animal cruelty. The sadistic animal abuser is thus seen himself, to be a victim of extreme physical abuse.

For some abused or disturbed children, animals represent a means to gain power or control over some other being. Cruelty to animals represents a displacement of aggression from humans to animals. Children who are not adequately loved by a father or mother, develop a revenge on the world. Severely abused children who lack the ability to empathize with the suffering of animals, take out their frustrations and hostility on animals with little remorse. Thus the abuse of animals is an effort to compensate for feelings of inferiority and powerlessness (Robin and ten Bensel, 1985).

Robin and ten Bensel (1985) surveyed teenagers between the ages of 13 and 18 living in two separate juvenile institutions and youth living in an adolescent psychiatric unit regarding their experiences with pets. They were compared to a control group from two urban public high schools. They found that among the abused institutionalized youths, 91 percent said that they have had a special pet and of these youths 99 percent said they loved or liked their pet very much. In comparison, the control group indicated 90 percent had a special pet and 97 percent said they either loved or liked their pet very much. This suggests that pets do have an important place among the emotional lives of abused as well as non-abused children. This also supports the notion that pet ownership itself will prevent emotional or behavioral disturbances in children. In looking at the abuse

of animals, the authors found that the pets of institutionalized children suffered more abuse, however, the abuser was usually someone other than the child. In fact, in a few instances the child had to intervene against their parents to protect their pets. Of the youths who indicated that they mistreated their pets, sadness and remorse were the most common responses.

Therapeutic Horsemanship

The present study will focus on the therapeutic benefit that horses provide to emotionally handicapped individuals. The interest in therapeutic riding seems to have originated from two events. The first concerned Mrs. Liz Hartel, who was an avid young horsewoman from Denmark who was stricken with polio in 1943. At that point she was distraught with the idea of spending the rest of her life in a wheelchair. However, her determination led her to ride again and become a silver medal winner at the 1952 Olympic Games in the Grand Prix de Dressage competition (Haskin, 1974).

The second event that spurred the beginning of therapeutic horseback riding was the aftermath that occurred in England after World War II. Several amputees and blind soldiers approached a military riding instructor, John Davies, for lessons. Davies responded to their request and it was not long after that he was asked to direct the world's first facility for handicapped riders, known as Pony Riding for the Disabled Trust (Marcus, 1976).

Today there are accredited programs all over the country designed to teach handicapped persons to ride horses. The Cheff Center in Augusta Michigan is the largest and most renowned facility of this kind in the world. It opened its doors in 1970 as the

first center for therapeutic horseback riding in the United States. Organizations, such as the Center to Study Human Animal Relationships and Environments, at the University of Minnesota, and the North American Riding for the Handicapped Association, Inc. (NARHA) have been set up to support the work of individuals in this field. These organizations support research and provide technical assistance to those who want to set up meaningful programs (Krawetz, 1993).

The majority of therapeutic horseback riding programs serve individuals with motor, sensory, and intellectual disabilities. There are few barriers that would exclude a disabled child or adult from a program. Many of the programs serve children in the years between elementary school and junior high school. Children with Cerebral Palsy make up the majority of the students, followed by orthopedic disabilities, such as amputees. In addition, therapeutic riding classes for students with mental retardation and the multiple handicaps are growing in number. Programs easily accommodate students who are deaf or blind as well (Mayberry, 1978.)

There is substantial literature on the positive effects of therapeutic riding on those with physical disabilities. Bertoti (1988) describes measurable improvements of posture in children with spastic cerebral palsy after taking part in a therapeutic riding program. Other subjective reports were said to decrease fear of movement, decrease hypertonicity, and improve weight bearing and functional balance skills. Henrickson (1971) reported other subjective findings. She noted physical and psychological improvements in children with physical disabilities who participated in a therapeutic riding program. Henrickson speculated that the main psychological advantage of riding for the physically disabled is having the freedom of movement despite their nonfunctional legs. She also noted physical

changes which took place including improvements in posture, balance, strength in the legs, and coordination for walking.

Mayberry (1978) notes that learning to ride has a unique value for those children who are emotionally disturbed. He describes the psychodynamics of these children who are lovingly able to relate to a large warm animal, socially interact with a group of riders, and take on the responsibility of providing basic care for a horse. These experiences become a special set of experiences which have deeper meanings for the child who is disturbed, self-destructive, hyperactive, passive, or withdrawn. Using the horse as a therapeutic tool, a skilled instructor can guide these children out of their world of turmoil, anxiety and frustration, into one where they can experience success and positive interactions among their peers.

According to Lambert (1999), therapeutic riding is successful because horses are acutely sensitive to people's feelings. Through non-verbal communication, the horse will let the person know that their feelings are legitimate and important. The horse's emotional responsiveness serves as the catalyst for the patient's growth. For example, if someone is nervous when approaching, the horse will move away. This person must relinquish their fear in order to develop a relationship with the horse. Alternatively, people with attention deficit hyperactivity disorder must learn to slow down to relate with the horse.

Horseback riding requires clear thinking to direct the horse and make correct responses to his input. The encounter with a large overpowering yet gentle creature becomes both a metaphor and a paradox. A metaphor is found in the balance needed to enable the rider to flow with the horse's motion which mirrors the rider's emotional balance

on the ground. For example “an executive woman in the human services program, had a hard time taking control of the horse and giving it adequate direction. She recognized that she treated the people she supervised the same way to the detriment of herself and her agency.” Another example was given of “men having a tendency to deny their fear. in dealing with the horse, men soon learn that force and domination simply will not work. They too, learn new, more effective ways of getting what they want.” The paradox of simultaneously taking charge and letting go. Their behavior around and on the horses presents a symbolic representation of how each person approaches unfamiliar and perhaps challenging experiences in their daily lives. Their reactions to power become readily evident. The non-verbal communication which takes place between a rider and horse where they respond to each other’s cues leaves them to interact as if in a dance. This communication requires attentive listening, signaling and responding. Having to manage the ride while respecting the horse’s needs and experience presents a unique model for healthy relationships. The rider maintains authority over the horse not by forceful actions, but rather by commanding the animal’s respect and earning his confidence (Moses, 1994.)

Judith Tyler (1994), a clinical psychotherapist and avid horsewoman discussed the use of horses in the treatment of emotional disorders in patients. She considers “equine therapy” as a very useful supplement to skilled conventional psychotherapy. In her view, while “equine therapy” can be used for all ages and emotional problems, it should be limited to those patients who are inaccessible by more conventional therapies or to those who need a “boost” therapeutically. Both the patient and the therapist should have an understanding of why horse therapy is being introduced, with clear therapeutic goals in mind.

According to Tyler (1994) patients who are said to particularly benefit from equine psychotherapy are adolescents with Oppositional Defiant Disorder, particularly those she considers “counselor wise.” When the attention is focused on the horse, much of their defensive behaviors subside. Another group who greatly benefits from equine therapy are patients who are experiencing difficulties related to control in their environments. Those who tend to over control seem to relinquish this need while riding the horse, and are therefore less likely to try to control the therapy session. Patients who continue to over control while riding can be drawn parallels by the therapist between this instance of over control and the over control within personal relationships. These issues around control, or the loss of it, are important for patients with a history of childhood trauma. For dissociative patients, their senses are stimulated by changing sights, sounds, smells, temperature and the physical feel of the horse he or she is riding. This flood of stimulation, helps the dissociative patient stay present while riding. Patients with Attention Deficit Hyperactivity Disorder are encouraged to groom, stroke and talk to their horses for tactile stimulation, to bond with their horse and to help the child to learn to focus. Depressed or severely stressed patients may be helped by the lulling rhythm of the horse along with the sights, scents and sounds of the natural surroundings. For the angry patient, a horseback ride may help to eliminate the double bind of the patient who is asking for help, but who comes into therapy with anger which is displaced onto the therapist. Thus, the therapy on horseback seems to dissipate anger and to avoid a power struggle which might have occurred in an office setting.

To date, few empirical studies have been done to substantiate the psychological benefits of therapeutic horseback riding. Mason (1988) studied the effects of therapeutic

riding on adults with cerebral palsy. He found a significant increase in self-concept which was attributed to removing the primary disability, an inability to walk.

Carlson (1983) studied the effects of a therapeutic horseback riding program to determine if this is a viable method for increasing locus of control and self-concept on learning disabled children. This study compared two groups of learning disabled students from private schools. The students were all males and ranged from grades six through eleven. One group participated in the therapeutic riding program, while the other served as a control group. Carlson found that while self-concept did not significantly increase due to participation in a therapeutic riding program, movement toward an internalizing locus of control did change significantly. This indicates that the riding group made a better adjustment to life with gains in feeling mastery over their environment and in beliefs that their reinforcements are directly contingent upon their own behaviors. Carlson added that while improvements in self-concept were not significant, subjective reports from the learning disabled students, indicated a favorable experience in the riding program which enhanced their self-concept.

A pilot study by Cawley, Cawley, & Retter (1994) attempted to determine if a relationship exists between therapeutic horseback riding and an increased self-concept. This study utilized a pre and post-test design on one group of children. The Piers Harris Children's Self-Concept scale was administered to 29 adolescents with special educational needs. While the results of this pilot study were not significant, the authors offered several suggestions if the study were to be replicated. In their own critique they mentioned the need for a control group, larger sample sizes, and the need for a longitudinal study to determine the long term effects of the program on one's self-concept.

The proposed study attempted to expand upon the work cited by Cawley, et.al, also measuring the effect of a therapeutic horseback riding program on emotionally handicapped youngsters. In particular, this study will focus on the bond formed between a horse and emotionally disturbed adolescent boys and the influence that bond has on their levels of frustration tolerance, self-esteem, depression and anxiety.

Statement of Purpose

Many claims have been made to support the physical, educational, and psychological benefits of therapeutic horseback riding for the handicapped. There has been much research documenting the physical benefits for physically disabled individuals, yet the empirical research to support the emotional benefits for physically and emotionally disabled individuals has been sparse. Thus the purpose of the study was to determine whether a therapeutic horseback riding program could be of benefit in influencing several important aspects of an individual's psychological makeup, namely their self-esteem, frustration tolerance, anxiety and depression.

Hypotheses

This study focused on changes in self-esteem, depression, anxiety and frustration tolerance of emotionally disturbed children as a result of participation in a therapeutic horsemanship program. The research hypotheses were as follows:

Hypothesis 1: Self-reported assessment of animal bonding will significantly contribute to the prediction of self-reported assessment of self-esteem, depression, anxiety and frustration tolerance.

Hypothesis 2: Program assessment of involvement in a therapeutic horsemanship program will significantly contribute to the prediction of self-reported assessment of self-esteem, depression, anxiety and frustration tolerance.

Hypothesis 3: Program assessment of conduct in a therapeutic horsemanship program will significantly contribute to the prediction of self-reported assessments of self-esteem, depression, anxiety and frustration tolerance.

CHAPTER III

Methodology

Participants

The sample consisted of 81 6-16 year old males from Green Chimneys School, a residential treatment center in Putnam County, New York. Participants were all males due to the limited number of females enrolled in the school. The boys were of various ethnicities, mostly self-identified as African American 46.9%, Hispanic 17.3% and Caucasian 17.3%. All male residents in the residential treatment facility at Green Chimneys were invited to participate in the study. The children were placed in care outside of the home due to severe emotional disturbances, severe behavioral difficulties and/or familial neglect. Some of the children were placed by their home school districts while the majority were involuntarily placed through the court system (i.e. Administration for Children's Services). The children's diagnoses varied and many carried multiple diagnoses. These included, but were not limited to, affective disorders (depression, anxiety) which accounted for 54.3%, Attention Deficit Hyperactivity Disorder 25.9%, psychotic disorders (schizophrenia, schizoaffective and bipolar) 74.1%, Post Traumatic Stress Disorder 81.5% and behavioral disorders (Oppositional Defiant Disorder, Conduct disorder, and Explosive disorder) 56.8%.

Materials

This study utilized eight instruments which are described individually in the following subsections: historical questionnaire, demographic questionnaire, the Rosenberg

Self-Esteem Scale, a brief measure of frustration tolerance (Thompson & Dodder, 1986), the Achenbach Youth Self-Report, the Youth-Equine Bonding Scale and two Green Chimneys Longitudinal Assessment scales. The historical questionnaire was completed by the researcher and ascertained information from the case record. It included information such as diagnosis, previous behavioral problems and pet experience (Appendix B).

Self-report measures administered to the participants included a demographic questionnaire, the Rosenberg Self-Esteem Scale, a brief measure of frustration tolerance (Thompson & Dodder, 1986), the Achenbach Youth Self-Report and the Youth-Equine Bonding Scale (Greenwald, 1998). The demographic questionnaire was utilized to obtain information such as age, ethnicity, level of education, previous experience with horses, how long they have been riding horses, and other related information (Appendix A).

The remaining instruments were two G.L.A.S. rating scales (1983) which were completed by the horseback riding instructor. These included six selected questions from the Farm GLAS Scores (Appendix F) and nine selected questions from the Program Teacher Case Conference Report (Appendix G).

The Achenbach Youth Self-Report is a 112 item forced choice self-report measure which takes the students approximately 20-30 minutes to complete. Factor analysis determined that the scale can be broken into two factors, internalizing and externalizing. In addition many of the items fall into neither category. The Externalizing factor consists of a combination of scores on the Delinquency and Aggressive Behavior subscales. The Internalizing factor subsumes the scales of Withdrawal, Somatic Complaints and Anxiety/Depression. The three remaining scales which do not load on either factor are Attention Problems, Social Problems, and Thought Problems. The scale also contains a

Competence Scale which consists of an Activities Scale and a Social Competence scale (Achenbach, 1991).

Achenbach (1991) reports that one week test-retest reliability's for boys on the individual scales range from .45 to .83. The Internalizing and Externalizing scales, however, have a reliability of .76 and .80 respectively. The overall composite reliability has a mean of .69. The competence scale has an overall mean reliability of .67 for boys having a .80 reliability coefficient for social competence but only a .37 reliability for actives. All the reliability's, with the exception of the activities scale, are significant at the .05 level.

Achenbach (1991) also reported test-retest reliability over seven months. On the competence scale the reliability score for boys were .43 and .44 with a total competence reliability of .69. On the primary scales the reliability's range from .11 for Withdrawal to .61 for Attention Problems. The overall mean reliability is .40. All reliabilities reported are significant at the .05 level with the exception of Withdrawal and Social Problems. Internal consistency as measured by Cronbach's Alpha ranges between .59 and .86 for the individual scales and .95 for overall problems.

Achenbach (1991) also reported validity scores for each of the variables. With regard to content validity, Achenbach notes that the items were adopted from the Child Behavior Checklist (Achenbach & Edelbrock, 1983). Achenbach also notes that in contrast to a non-referred sample, a referred sample scored higher on 95 of the 104 items. Scores on the various scales accounted for between 5 to 15 percent of the variance for boys referral status with almost all being significant.

The Rosenberg Self-Esteem Scale was utilized to assess one's perceived level of self-esteem. This scale is a 10 item forced choice test. It takes about 5 minutes to

complete and is appropriate for grades three through twelve. Convergent validity was established through correlations with other measures of locus of control. In comparison with the Intellectual Achievement Responsibility Questionnaire, there were significant correlations with the I+ but not with the I- scores: $r = .31$, and $r = .51$ respectively in groups of third and seventh graders. A correlation of $.41$ with the Bialer-Cromwell Scale was found. Reliability was established with the split-half method corrected by the Spearman-Brown Prophecy Formula. Correlations were $r = .63$ for grades 3-5, and $r = .68$ for grades 6-8, and $r = .74$ for grades 9-11, and $r = .81$ for grade 12.

A brief measure of frustration tolerance (Thompson & Dodder, 1986) was administered to determine the participants level of frustration tolerance. These items are part of larger questionnaire containing various other constructs (self-perception, goal-orientation, retention of norms, internalization of rules, available meaningful roles and group reinforcement). The scale consists of twelve items in which the participants indicate the degree to which each item is true about them. The questionnaire was developed to measure the validity of containment theory in the detection of delinquency. The entire measure was validated by Thompson and Dodder (1986) on male and female Caucasian and African American adolescents. Results indicated that females had higher levels of containment than males. Conversely, males had higher levels of self-reported delinquency. The scores for frustration tolerance were highest for black females, followed by black males, and white males. White females had the levels of frustration tolerance. Taken together, the seven measures were highly predictive of delinquency for all subject categories except for black females. For white males, frustration tolerance had a factor loading of $.62$ on the one factor that the measures possessed. For black males, frustration

tolerance had a factor loading of .75 on the first unrotated factor. The correlation of the twelve items on the frustration tolerance measure with overall containment ranged from -.33 to .53.

The Youth-Equine Bonding Scale is a 27 item self-report measure (Greenwald, 1998). A review of the literature indicated that there is no existing scale specifically designed to measure the bond/attachment between an individual and a horse. There were, however, several scales in the literature which measure the bond/attachment between domestic animals and humans. The scale which seemed most applicable to the relationship between a youngster and horse was the Miller-Rada Commitment to Pets Scale (1996). This scale was therefore chosen to be adapted to create a scale which would be of use in this study. The Miller-Rada Commitment to Pets Scale (1996) is a twelve-item likert scale. It contains an internal reliability of .90. The zero order correlation between commitment and attachment was $r=.44$. This correlation supported the notion that commitment to pets and attachment to pets are positively related.

In adapting the Miller-Rada Commitment to Pets Scale (1996) to create the Youth-Equine Bonding Scale (1998), both the researcher and the director of Green Chimney's farm program, who are both experts in the field, collaborated on expanding the preexisting questions, as well as creating new ones which would appropriately target the bond between an adolescent and a horse. Construction of these items were based on previous knowledge with this population and observable interactions on attachment with horses and the effect on the mood of the adolescents. Questions were changed from the original likert format to a true/false response to simplify the task for the intended population. Reliability of the scale determined by internal consistency yielded an alpha of

.89. However, item #10 was determined to negatively correlate with the other items and was therefore removed from the data. The revised internal consistency yielded an alpha of .90.

The Green Chimneys Longitudinal Assessment Scales or G.L.A.S. scales (Green Chimney's, 1983) were developed by Green Chimneys' School as a method of objectively assessing and documenting a child's level of functioning in all aspects of life in a residential treatment program. In particular, the scales were designed to follow a resident's movement in treatment from admission to discharge. It was hoped that by including all disciplines in the collection of data on the child's total functioning, that all levels of staff would be sensitized to the many facets of the child including his/her strengths and weaknesses, needs, goals, and treatment planning. The scales were initially developed by staff members and used on a trial basis in 1979. A first revision was completed in 1980 and the latest revision was completed in 1983 for use with a master scale. Each G.L.A.S. scale contains one item which assesses a student's ability in a given area on a 5 point likert type scale, where a "1" means impaired and a "5" indicates good-excellent.

At the Green Chimneys school, G.L.A.S. scales (Green Chimney's, 1983) are used for all areas of the residents life. However, for the purposes of this study two G.L.A.S. scales have been selected and will be completed by the riding instructor. The first is the Farm GLAS Scale and was completed with the understanding that the items pertained to horses. This scale was administered upon completion of data collection with the participants. The verbal directions required the riding instructor to first respond to the items as they applied currently and secondly for each item indicate if the child 's

behavior/attitude improved, remained the same, or worsened. This measure therefore required the instructor to recall each student's past behavior which served as an indicator of change in the participant's involvement in the horsemanship program. The abbreviated name for this change variable is termed "program involvement." The following items were selected for use in this study: ability to work in a group learning about animals, handles animals in a gentle way, knowledgeable about the topic related to animals, overall skill level working with an animal, shows interest in learning about animals.

The second G.L.A.S. scale, The Program Teacher Case Conference Report was also administered with the intent of completing the scale with items pertaining to the children's involvement with horses. This scale was given as a pre-test measure at the onset of the data collection with the participants. The scale was readministered and used as a post-test measure upon completion of data collection with the participants (approximately four months later.) This measure functioned as an indicator of the participant's conduct in the horsemanship program and is termed "conduct posttest." Items selected for use in this study included: attendance, involvement, skill level, directions, supervision, behavior, group behavior, completion/responsibility, and overall adjustment rating.

For the purpose of this study, G.L.A.S. scales which are completed by the riding instructor and can be divided in two separate categories and then aggregated together to form two distinct variables. The first variable takes into account the child's 'involvement in a therapeutic horsemanship program'. This includes the instructor's perception of the resident's level of involvement and improvement with the horse. This aggregate variable includes the following G.L.A.S. scales: ability to work in a group learning about animals, handles animals in a gentle way, takes initiative in working with animals, knowledgeable

about the topic related to animals, overall skill level working with animals, and shows interest in learning about animals. The second aggregate variable encompasses a child's 'conduct in a therapeutic horsemanship program'. This variable includes staff's perception of the resident's behavior and overall compliance with the rules and limits involved in participation in the program in the horsemanship program. This variable includes the following G.L.A.S. scales: attendance, involvement, skill level, task supervision, group behavior, behavior, completion/responsibility, and overall adjustment rating.

Procedure

Permission was granted by the review board at Green Chimney's school prior to data collection. All male students in the residential treatment center were included in the research study. The study is designed to evaluate an existing riding program and therefore the residents participation in both riding and data collection of self-report measures was considered part of the riding program. As with riding itself, students were permitted to withdraw from the horsemanship program at any point, including during data collection of the self-report measures. The confidentiality of all participants was insured by replacing their names with a code which was provided by the researcher.

Male students involved in the horseback riding program were instructed on the care and maintenance of the horse, as well as on the actual horseback riding experience. Students came to the farm two times per week. Each visit to the farm included time spent preparing the horse for its ride and actually riding in a group lesson. The actual time spent on the horse was approximately 30 minutes. Students were assigned to the same horse

approximately fifty percent of the time, however this is not a guaranteed occurrence. Students rode in small groups of three to four riders.

All participants were administered a demographic questionnaire and four self-report measures. These were administered either individually or in small groups of 2-3 students, depending on the children's reading and cognitive levels, as well as, behavioral compliance. All measures were administered by the researcher or research assistant. The assistant, a graduate student in special education, was trained in the administration of all scales and was supervised in his interactions and general understanding of the stated target population. Participants were asked to read the questions and respond appropriately. Many of the children had difficulty reading and understanding the questions due to inadequate reading levels, low cognitive functioning and/or poor receptive language abilities. In these instances, the questions were read aloud by the examiner and occasionally a question was reworded to provide clarity. Care was taken not to change the meaning or influence the participant's decision. Participants were compensated with a yo-yo for contributing their time in completing the measures.

G.L.A.S. scale scores were obtained from the horseback riding instructor employed by Green Chimneys on two occasions: at the initiation of data collection and upon completion of data collection with the participants.

Lastly, historical information was obtained from a review of each child's record which will provided additional information such as age, length of time in placement, specific behavioral difficulties, experience with animals, age and diagnosis.

CHAPTER IV

Results

Description of Sample

A description of participating subjects was created using information obtained from the demographic and historical questionnaires. Participants were all male, due to the predominance of male residents at Green Chimney's. Characteristics of the 82 participants are presented in Tables 1 and 2. As noted in Table 1, participants were predominantly African American (47%) and in grades 4-6 (44%). Apparently half of the sample had prior experience in horseback riding and in caring for horses (56%). Of those with prior experience, 25% of them had ridden 1-5 times, 15% had ridden more than 20 times, 7% rode 6-10 times and 9% rode 11-15 times. A quarter of the sample (25%) had cared for horses a few times prior to coming to Green Chimney's, 11% cared for horses once and 14% cared for horse more than 20 times. The majority of residents participated in the horseback riding program (80%) at Green Chimney's and of those three quarters (75%) reported having a favorite horse.

The participant's diagnoses were grouped to include behavioral disorders, psychotic disorders, affective disorders, ADHD and PTSD. Of these diagnoses, 19.9% carried a single diagnosis, 43.2% carried a dual diagnosis, 32.1% carried three diagnoses, 2.5% carried four diagnoses and 2.5% were not identified as carrying a diagnosis. Of the total participants, the following dual diagnoses were identified: 3 participants were found to carry a diagnosis of PTSD and a psychotic disorder, 5 carried a psychotic disorder and a behavioral disorder, 8 were identified with an affective disorder and PTSD, 19 participants carried affective disorder and a behavioral disorder, 8 were found to have

Table 1

Sample Description

	<u>Percent</u>	<u>Frequency</u>
Grade		
1-3	13.6	11
4-6	44.4	36
7-9	25.9	21
10-12	3.7	3
Ethnicity		
Asian	2.5	2
Caucasian	17.3	14
Hispanic	17.3	14
African American	46.9	38
Other	4.9	4
Prior Experience riding/caring horses		
Yes	55.6	45
No	33.3	27
Prior times ridden		
1-5	25.9	21
6-10	7.4	6
11-15	8.6	7
More than 20	14.8	12
Prior times cared for horse		
Once	11.1	9
A few times	24.7	20
More than 20 Times	13.6	11
Participate in riding at G.C.		
Yes	80.2	65
No	8.6	7
Favorite horse at G.C.		
Yes	75.3	61
No	11.1	9

Note: Total n=81

PTSD and a behavioral disorder, 26 carried ADHD and an affective disorder, 12 had ADHD and PTSD, 32 participants had ADHD and a behavioral disorder and 4 participants carried a psychotic disorder and an affective disorder.

Table 2 represents the sample means on variables important to the study. On average the participants had a verbal IQ of 85.71 ($SD=14.67$). The average length of time spent in the horsemanship program was 92.25 ($SD=60.48$) weeks. The mean age of the participants in the sample is 11.73.

To analyze the data, zero order correlations and multiple regression equations were conducted. The zero-order correlations between predictor and outcome variables and among the predictors themselves are presented in Tables 3 and 4. As can be seen in Table 4, Intercorrelations among the predictor variables yielded few significant correlations. Age and Length of week in program are correlated at $p<.01$. Improvement in the child's involvement in the horsemanship program (PROGRAM INVOLVMENT) and age are negatively correlated at $p<.01$. Improvement in a participants conduct in the horsemanship program (CONDUCT POSTTEST) and improved involvement in the horsemanship program (PROGRAM INVOLVMENT) are correlated at $p<.05$.

Table 2

Means and Standard Deviations For Predictor Variables

	<u>Mean</u>	<u>SD</u>	<u>Minimum</u>	<u>Maximum</u>
VIQ	85.71	14.67	58	138
Bonding Scale	15.40	6.79	1.00	26.00
Time in Program	92.25	60.48	9.86	266.57
Age	11.73	2.02	6.75	14.98
Program Involvement	1.52	1.18	.00	4.00
GLAS Scale Sum	20.60	3.46	11.00	27.00
Conduct Pretest	32.61	8.41	11.00	45.00
Conduct Posttest	29.31	7.06	12.00	45.00

Note: Total n = 81. BONDING SCALE is the Youth-Equine Bonding scale. TIME IN PROGRAM is the length of time the child has participated in the horsemanship program. PROGRAM INVOLVEMENT indicates that the child improved or remained the same, as rated by the GLAS scale for horsemanship, in their involvement in the horsemanship program. GLAS SCALE SUM is the sum rating on the GLAS scale for horsemanship. CONDUCT PRETEST is the pretest rating for a child's conduct while in the horsemanship program. CONDUCT POSTTEST is the posttest rating for a child's conduct while in the horsemanship program.

Table 3**Correlations between Predictors and Outcome Variables**

	Time in Program	Age	VIQ	Program Involvement	Conduct Posttest	Bonding Scale
Self-esteem	.10	.16	.41**	.20	.04	-.15
Frustration tolerance	.12	-.08	.20	.06	-.02	.03
<u>YSR T SCORES</u>						
Withdrawn Scale	-.21	-.24*	-.35**	-.11	.01	.21
Somatic Complaints Scale	-.11	-.21	-.20	-.27	.05	.29*
Anxious Depressed Scale	-.23	-.25*	-.23	-.25	.01	.26*
Social Problems Scale	-.05	-.08	-.41**	-.21	-.02	.09
Thought Problems Scale	-.18	-.19	-.02	-.29*	-.03	-.24*
Attention Problems Scale	-.18	-.04	-.36**	-.27	-.11	.20
Delinquent Behavior Scale	-.17	-.01	-.18	-.31*	.06	.18
Aggressive Behavior Scale	-.11	-.06	-.38**	-.27	-.04	.26*
Self Destructive Identity Problems Scale	-.19	-.24*	-.30*	-.31*	-.00	.27*
Internalizing	-.14	-.28*	-.25*	-.25*	-.03	.24*
Externalizing	-.09	-.07	-.28*	-.34*	-.02	.14
Total Problems	-.14	-.20	-.26*	-.32*	-.05	.19

* $p < .05$ ** $p < .01$.

Note: Total $n = 81$. BONDING SCALE is the Youth-Equine Bonding scale. TIME IN PROGRAM is the length of time the child has participated in the horsemanship program. PROGRAM INVOLVEMENT indicates that the child improved or remained the same, as rated by the G.L.A.S. scale for horsemanship, in their involvement in the horsemanship program. CONDUCT POSTTEST is the posttest rating for a child's conduct while in the horsemanship program.

Table 4

Intercorrelations among Predictor Variables

	Time in Program	Age	VIQ	Program Involvement	Conduct Posttest	Bonding Scale
Time in Program	1.00	.34**	-.09	-.17	-.01	-.22
Age		1.00	-.18	-.33**	.15	-.06
VIQ			1.00	.09	-.08	.01
Program Involvement				1.00	.32*	-.09
Conduct Posttest					1.00	.03
Bonding Scale						1.00

* $p < .05$ ** $p < .01$

Note: Total $n = 81$. BONDING SCALE is the Youth-Equine Bonding scale. TIME IN PROGRAM is the length of time the child has participated in the horsemanship program. PROGRAM INVOLVEMENT indicates that the child improved or remained the same, as rated by the GLAS scale for horsemanship, in their involvement in the horsemanship program. GLAS SUM SCALE is the sum rating on the GLAS scale for horsemanship. CONDUCT PRETEST is the pretest rating for a child's conduct while in the horsemanship program. CONDUCT POSTTEST is the posttest rating for a child's conduct while in the horsemanship program.

Test of Hypotheses

Hypothesis One:

The first hypothesis states that self-reported assessment of animal bonding will significantly contribute to the prediction of self-reported assessment of self-esteem, depression, anxiety, and frustration tolerance. As stated earlier, BONDING SCALE is an abbreviation for the score on the youth-equine bonding scale which represents the strength of the bond or attachment a child has to a horse. When interpreting the zero order correlations in Table 3, equine bonding is found to significantly correlate with depression and anxiety at the $p < .05$ level. This indicates that children who have a stronger bond with a horse have greater levels of depression and anxiety. However, Equine Bonding did not significantly correlate with self-esteem or frustration tolerance. It did, however, correlate with other outcome variables such as somatic complaints, aggressive behavior, self-destructive/identity problems and internalizing of problems and negatively correlates with thought problems at the $p < .05$ level.

To further analyze the data, 14 multiple set-wise regressions were conducted for each of the outcome variables (anxious/depressed, self-esteem, frustration tolerance, withdrawn, somatic complaints, thought problems, social problems, aggressive behavior, self-destructive/identity problems, delinquent behavior, attention, total problems, internalizing, externalizing.) To do this, two predictor sets were created. Predictor set I included TIME IN PROGRAM (calculated by length of weeks in the horsemanship program), age, and verbal IQ. Predictor set II included PROGRAM INVOLVEMENT (an indication of the child's improvement or remaining the same in their involvement in the horsemanship program), CONDUCT POSTTEST (which is the post-test rating of a

GLAS scale for a child's conduct while in the horsemanship program), and BONDING SCALE (which is the score on the youth-equine bonding scale). First, predictor set I (length of time in program, age and verbal IQ) was entered. Then set II was added to the equation to determine the extent that the riding variables contributed above and beyond that of the demographic variables. It is important to note that for the multiple regression analyses the n size is much lower ($n=39$) than that of the correlations between the predictors and outcome variables ($n=81$).

The following provides an analysis of the set-wise multiple regression data for the outcome variables identified in the hypotheses. Results indicate that 21% of the variance of anxious/depressed is accounted for by the riding variables alone, above and beyond the contribution of the demographic variables (VIQ, age and length of time in program) ($\Delta R^2 = .21, p < .05$) (see Table 5). Specific to hypothesis one, level of bond or attachment to a horse ($b = .68, p < .05$) uniquely contribute to the prediction of one feeling less anxious and/or depressed. As seen in Table 6 20% of the variance of self-esteem can be accounted for by verbal IQ, age and length of time in the horsemanship program ($R^2 = .20, p < .05$). The riding variables alone (set II) did not contribute significantly to one's self-esteem ($\Delta R^2 = .06, p > .05$). Specific to hypothesis one, level of bond or attachment to a horse did not significantly contribute to the prediction of self-esteem ($b = -.06, p > .05$).

Table 5

Setwise regression Analyses: Demographics VIQ and Riding Variables as Predictors of T-Scores for Anxious/Depressed

Unstandardized Regression Coefficients (b)			
Predictors	Anxious/Depressed		
	<u>ΔR^2</u>	<u>Step 1</u>	<u>Step 2</u>
<u>Step 1</u>	.23***		
Time in Program		-.06	-.06
Age		-.90	-2.11
VIQ		-.40**	-.42**
<u>Step 2</u>	.21*		
Program Involvement			-4.14*
Conduct Posttest			.26
Bonding Scale			.68*

* $p < .05$ ** $p < .01$ *** $p < .001$

Note: $n = 39$. BONDING SCALE is the Youth-Equine Bonding scale. TIME IN PROGRAM is the length of time the child has participated in the horsemanship program. PROGRAM INVOLVEMENT indicates that the child improved or remained the same, as rated by the G.L.A.S. scale for horsemanship, in their involvement in the horsemanship program. CONDUCT POSTTEST is the posttest rating for a child's conduct while in the horsemanship program.

Table 6

Setwise regression Analyses: Demographics VIQ and Riding Variables as Predictors of T-Scores for Self-Esteem and Frustration Tolerance

<u>Predictors</u>	<u>Unstandardized Regression Coefficients (b)</u>					
	<u>Self-Esteem</u>			<u>Frustration Tolerance</u>		
	<u>ΔR^2</u>	<u>Step 1</u>	<u>Step 2</u>	<u>ΔR^2</u>	<u>Step 1</u>	<u>Step 2</u>
<u>Step 1</u>	.20*			.14		
Time in Program		.01	.01		.05*	.05*
Age		.19	.37		-.17	.09
VIQ		.17**	.17**		.09	.06
<u>Step 2</u>	<u>.06</u>			<u>.05</u>		
Program Involvement			.94			1.20
Conduct Posttest			.05			-.05
Bonding Scale			-.06			.24

* $p < .05$ ** $p < .01$ *** $p < .001$

Note: $n = 39$. BONDING SCALE is the Youth-Equine Bonding scale. TIME IN PROGRAM is the length of time the child has participated in the horsemanship program. PROGRAM INVOLVEMENT indicates that the child improved or remained the same, as rated by the G.L.A.S. scale for horsemanship, in their involvement in the horsemanship program. CONDUCT POSTTEST is the posttest rating for a child's conduct while in the horsemanship program.

Hypothesis Two:

The second hypothesis states that program assessment of involvement in a therapeutic horsemanship program will significantly contribute to the prediction of self-reported assessment of self-esteem, depression, anxiety and frustration tolerance. As stated earlier, PROGRAM INVOLVEMENT is the predictor variable name used when indicating whether a child improved or remained the same on questions related to a child's involvement in the horsemanship program. When examining the zero order correlations in Table 3, PROGRAM INVOLVEMENT did not significantly correlate with any of the predicted outcome variables. PROGRAM INVOLVEMENT did, however, show significant negative correlations with thought problems, delinquent behavior, self-destructive identity problems, internalizing of problems, externalizing of problems and total problems at the $p < .05$ level. So as one did better in the horsemanship program their thought problems, delinquent behavior, self-destructive behavior, internalizing of problems, externalizing of problems and total problems decreased.

As stated earlier, the following provides an analysis of the set-wise multiple regression data for the outcome variables identified in the hypotheses. Specifically, involvement in the horsemanship program ($b = -4.14, p < .05$), uniquely contributed to the prediction of one feeling less anxious and/or depressed (see Table 5). As seen in Table 6, involvement in the horsemanship program did not significantly contribute to the prediction of self-esteem ($b = .94, p < .05$) or frustration tolerance ($b = 1.20, p > .05$).

Hypothesis Three:

The third hypothesis states that program assessment of conduct in a therapeutic horsemanship program will significantly contribute to the prediction of self-esteem, depression, anxiety and frustration tolerance. As stated earlier, conduct in the horsemanship program is termed CONDUCT POSTTEST which is the post-test measure of the farm GLAS scale. When analyzing the correlations between the predictor and outcome variables, conduct in the horsemanship program was not found to significantly correlate with self-esteem, depression, anxiety, frustration tolerance or any other extraneous outcome variable.

As stated for hypothesis one and two, the following provides an analysis of the set-wise multiple regression data for the outcome variables identified in the hypotheses. Specifically, conduct in the horsemanship program ($b=.26$, $p>.05$) did not significantly contribute to the prediction of anxiety or depression (see Table 5). In addition (see Table 6), conduct in the horsemanship program did not significantly contribute to the prediction of self-esteem ($b=.05$, $p>.05$) or frustration tolerance ($b= -.05$, $p>.05$).

Additional Multiple Regression Analysis: Youth Self-Report Subscales as Outcome Variables

Multiple regression equations were calculated for other outcome variables of the Achanbach Youth Self-Report Measure. The horsemanship variables as a set were not a good predictor of withdrawn behavior ($\Delta R^2 = .13, p > .05$), however, the increased bond or attachment to a horse independently contributed to an increase in withdrawn behavior ($b = .50, p < .05$) (see Table 7). Results indicated that 32% of the variance of thought problems were accounted for by the horsemanship variables alone, above and beyond the contribution of the demographic variables ($\Delta R^2 = .32, p < .01$) (see Table 8). Of the horsemanship predictor variables, one's increased involvement in the horsemanship program (PROGRAM INVOLVEMENT) independently contributed to the prediction of thought problems ($b = -5.93, p < .01$). Results further indicated that the horsemanship variables accounted for 17% of the variance in aggressive behavior ($\Delta R^2 = .17, p < .05$) above and beyond that of the demographic variables contribution (see Table 9). Of the riding variables, the increased bond with the horse served as a significant predictor of increased aggressive behavior ($b = .73, p < .05$). As seen in Table 10, the horsemanship variables accounted for 28% of the variance of self-destructive behaviors and/or identity problems ($\Delta R^2 = .28, p < .01$). Specifically, a decreased involvement in the horsemanship program ($b = -4.86, p < .01$) and stronger bond to a horse ($b = .55, p < .05$) were significant predictors of self-destructive behaviors and identity problems. The horsemanship variables accounted for 25% of the variance of delinquent behavior ($\Delta R^2 = .25, p < .01$) above and beyond that of the demographic variables (see Table 10). Of the horsemanship predictors,

one's increased involvement in the horsemanship program independently contributed to predicting a decrease in delinquent behaviors ($b = -5.05, p < .01$). Analyses in Table 11 indicated that the horsemanship variables accounted for 21% of the variance of total problems ($\Delta R^2 = .21, p < .05$). The involvement in the horsemanship program (PROGRAM INVOLVEMENT) had a significant independent contribution to the prediction of total problems ($b = -5.34, p < .05$). The horsemanship variables accounted for 19% of the variance of internalizing behaviors ($\Delta R^2 = .19, p < .05$) beyond that of set I variables (see Table 12). Specifically, the less involvement in the horsemanship program ($b = -4.37, p < .05$) and the more bonded one is to the horse ($b = .77, p < .05$), the greater the tendency to internalize one's feelings or problems. Further results indicated that the horsemanship variables account for 18% of the variance of the tendency to externalize one's feelings or problems ($\Delta R^2 = .18, p < .05$) beyond set I variables (see Table 12). Of the horsemanship predictor variables, one's involvement in the horsemanship program significantly contributed to one's tendency to externalize feelings ($b = -4.79, p < .05$). The horsemanship variables were not found to be a good predictor of somatic complaints (Table 13), social problems (Table 9) or attentional problems (Table 11) ($\Delta R^2 = .17, .07, .12, p > .05$) respectively.

Table 7

Setwise regression Analyses: Demographics VIQ and Riding Variables as Predictors of T-Scores for Withdrawn

Unstandardized Regression Coefficients (b)

Predictors	Withdrawn		
	<u>ΔR²</u>	<u>Step 1</u>	<u>Step 2</u>
<u>Step 1</u>	.37***		
Time in Program		-.05	-.04
Age		-1.66*	-2.27**
VIQ		-.38***	-.41***
<u>Step 2</u>	.13		
Program Involvement			-1.88
Conduct Posttest			.16
Bonding Scale			.50*

*p<.05 **p<.01 ***p<.001

Note: n = 39. BONDING SCALE is the Youth-Equine Bonding scale. TIME IN PROGRAM is the length of time the child has participated in the horsemanship program. PROGRAM INVOLVEMENT indicates that the child improved or remained the same, as rated by the G.L.A.S. scale for horsemanship, in their involvement in the horsemanship program. CONDUCT POSTTEST is the posttest rating for a child's conduct while in the horsemanship program.

Table 8

Setwise regression Analyses: Demographics VIQ and Riding Variables as Predictors of T-Scores for Thought Problems

Unstandardized Regression Coefficients (<i>b</i>)			
Predictors	Thought Problems		
	<u>ΔR^2</u>	<u>Step 1</u>	<u>Step 2</u>
<u>Step 1</u>	.07		
Time in Program		-.06	-.06
Age		-.08	-1.8
VIQ		-.23	-.13
<u>Step 2</u>	.32**		
Program Involvement			-5.93**
Conduct Posttest			.34
Bonding Scale			.67

* $p < .05$ ** $p < .01$ *** $p < .001$

Note: $n = 39$. BONDING SCALE is the Youth-Equine Bonding scale. TIME IN PROGRAM is the length of time the child has participated in the horsemanship program. PROGRAM INVOLVMENT indicates that the child improved or remained the same, as rated by the G.L.A.S. scale for horsemanship, in their involvement in the horsemanship program. CONDUCT POSTTEST is the posttest rating for a child's conduct while in the horsemanship program.

Table 9

Setwise regression Analyses: Demographics VIQ and Riding Variables as Predictors of T-Scores for Social Problems and Aggressive Behavior

<u>Predictors</u>	<u>Unstandardized Regression Coefficients (b)</u>					
	<u>Social Problems</u>			<u>Aggressive Behavior</u>		
	<u>ΔR^2</u>	<u>Step 1</u>	<u>Step 2</u>	<u>ΔR^2</u>	<u>Step 1</u>	<u>Step 2</u>
<u>Step 1</u>	.29**			.19		
Time in Program		-.03	-.02		-.07	-.06
Age		-1.01	-1.3		-1.05	-1.77
VIQ		-.43***	-.46***		-.29	-.33*
<u>Step 2</u>	.07			.17*		
Program Involvement			-1.23			-2.70
Conduct Posttest			-.03			-.04
Bonding Scale			.44			.73*

* $p < .05$ ** $p < .01$ *** $p < .001$

Note: $n = 39$. BONDING SCALE is the Youth-Equine Bonding scale. TIME IN PROGRAM is the length of time the child has participated in the horsemanship program. PROGRAM INVOLVEMENT indicates that the child improved or remained the same, as rated by the G.L.A.S. scale for horsemanship, in their involvement in the horsemanship program. CONDUCT POSTTEST is the posttest rating for a child's conduct while in the horsemanship program.

Table 10

Setwise regression Analyses: Demographics VIQ and Riding Variables as Predictors of T-Scores for Self Destructive/Identity Problems and Delinquent Behavior

Predictors	Unstandardized Regression Coefficients (<i>b</i>)					
	Self Destructive/ Identity Problems			Delinquent Behaviors		
	ΔR^2	Step 1	Step 2	ΔR^2	Step 1	Step 2
<u>Step 1</u>	.26**			.12		
Time in Program		-.05	-.05		-.06	-.05
Age		-1.09	-2.47**		.13	-1.31
VIQ		-.38**	-.39***		-.22	-.21
<u>Step 2</u>	.28**			.25**		
Program Involvement			-4.86**			-5.05**
Conduct Posttest			.28			.33
Bonding Scale			.55*			.36

* $p < .05$ ** $p < .01$ *** $p < .001$

Note: $n = 39$. BONDING SCALE is the Youth-Equine Bonding scale. TIME IN PROGRAM is the length of time the child has participated in the horsemanship program. PROGRAM INVOLVEMENT indicates that the child improved or remained the same, as rated by the G.L.A.S. scale for horsemanship, in their involvement in the horsemanship program. CONDUCT POSTTEST is the posttest rating for a child's conduct while in the horsemanship program.

Table 11

Setwise regression Analyses: Demographics VIO and Riding Variables as Predictors of T-Scores for Attention and Total Problems

Predictors	Unstandardized Regression Coefficients (<i>b</i>)					
	Attention			Total Problems		
	ΔR^2	Step 1	Step 2	ΔR^2	Step 1	Step 2
<u>Step 1</u>	.22*			.21*		
Time in Program		-.06	-.06		-.05	-.05
Age		-.66	-1.05		-1.49	-2.95*
VIQ		-.35	-.39**		-4.47**	-.48**
<u>Step 2</u>	.12			.21*		
Program Involvement			-1.89			-5.34*
Conduct Posttest			-.10			.23
Bonding Scale			.58			.68

* $p < .05$ ** $p < .01$ *** $p < .001$

Note: $n = 39$. BONDING SCALE is the Youth-Equine Bonding scale. TIME IN PROGRAM is the length of time the child has participated in the horsemanship program. PROGRAM INVOLVEMENT indicates that the child improved or remained the same, as rated by the G.L.A.S. scale for horsemanship, in their involvement in the horsemanship program. CONDUCT POSTTEST is the posttest rating for a child's conduct while in the horsemanship program.

Table 12

Setwise regression Analyses: Demographics VIQ and Riding Variables as Predictors of T-Scores for Internalizing and Externalizing

Predictors	Unstandardized Regression Coefficients (b)					
	Internalizing			Externalizing		
	ΔR^2	Step 1	Step 2	ΔR^2	Step 1	Step 2
<u>Step 1</u>	.26*			.15		
Time in Program		-.04	-.03		-.06	-.05
Age		-1.63	-2.89*		-.93	-2.24
VIQ		-.54**	-.57**		-.34*	-.35*
<u>Step 2</u>	.19*			.18*		
Program Involvement			-4.37*			-4.79*
Conduct Posttest			.24			.20
Bonding Scale			.77*			.53

*p<.05 **p<.01 ***p<.001

Note: n = 39. BONDING SCALE is the Youth-Equine Bonding scale. TIME IN PROGRAM is the length of time the child has participated in the horsemanship program. PROGRAM INVOLVEMENT indicates that the child improved or remained the same, as rated by the G.L.A.S. scale for horsemanship, in their involvement in the horsemanship program. CONDUCT POSTTEST is the posttest rating for a child's conduct while in the horsemanship program.

Table 13

Setwise regression Analyses: Demographics VIQ and Riding Variables as Predictors of T-Scores for Somatic Complaints

Unstandardized Regression Coefficients (*b*)

Predictors	Somatic Complaints		
	ΔR^2	Step 1	Step 2
<u>Step 1</u>	.23*		
Time in Program		-.02	-.02
Age		.13	-.82
VIQ		-.41**	-.43**
<u>Step 2</u>	.17*		
Program Involvement			-3.08
Conduct Posttest			.25
<u>Bonding Scale</u>			.56

* $p < .05$ ** $p < .01$ *** $p < .001$

Note: $n = 39$. BONDING SCALE is the Youth-Equine Bonding scale. TIME IN PROGRAM is the length of time the child has participated in the horsemanship program. PROGRAM INVOLVEMENT indicates that the child improved or remained the same, as rated by the G.L.A.S. scale for horsemanship, in their involvement in the horsemanship program. CONDUCT POSTTEST is the posttest rating for a child's conduct while in the horsemanship program.

Chapter V

DISCUSSION

Summary of Findings

The present study was conducted to explore the effect of a program of therapeutic horsemanship on children with emotional disabilities. While the empirical literature on therapeutic horsemanship programs and individuals with physical disabilities has been plentiful, the impact on individuals with emotional disabilities has been quite limited. The present study was therefore intended to contribute to the field of therapeutic horsemanship, to determine the efficacy of programs for emotionally handicapped individuals. Due to the fact that all children at Green Chimney's school are given the opportunity to participate in the horsemanship program, the statistical design of this study could not include pre and post measures administered to the students, as there could not be a control group. In lieu of this, the statistical design centered around the framework of a program evaluation. The findings of the study are discussed in detail below.

One objective of this research was to understand how a child's bond or attachment to a horse could affect one's self-esteem, frustration tolerance and levels of depression and anxiety. This first hypothesis was partly confirmed. A child's bond or attachment to a horse had no influence on a child's self-esteem or frustration tolerance. However, children who experienced an attachment to a horse tended to be more anxious and depressed. One possible interpretation is that children who are depressed and anxious feel particularly safe or comfortable spending time with and connecting with a favorite horse. This notion is

supported by Beck and Katcher (1983) who state that animals facilitate people to feel safe and create a sense of intimacy.

The finding that boys who are more depressed and/or anxious are more bonded with a horse is consistent with the ten Bense's (1985) notion that pets satisfy the child's need for physical contact and touch without the fear of the complications that accompany contact with human beings. Cohen (1997) further supports this idea by stating that the only way to help a child who has been unable to form any stable relationships is to try to reconstruct the primary contact that may initiate the immobilized attachment. He believes this is best accomplished within a residential treatment facility which is geared toward establishing early attachment relationships. He believes this is done through prolonged and consistent paths of interaction between a child and adult. In this view, residential treatment facilities can accept and contain severe behavior problems and perceive them as signs of strivings towards attachments. He further adds, that for children with poor immobilized attachments, horses may be a less threatening attachment figure. Therefore the horse may serve as an intermediary attachment figure, allowing the child some positive attachment experiences before engaging in attachments with adults.

The second hypothesis in the present study posited that involvement in a therapeutic horsemanship program would affect children's self-esteem, frustration tolerance and levels of anxiety and depression. This hypothesis was partly substantiated by this study. Involvement in the horsemanship program did not contribute to children's self-esteem or frustration tolerance. The study did show that children who have higher levels of depression and anxiety are less likely to become involved in the horsemanship program. This result was not supported in the literature. According to the National

Institute of Mental Health, children who exercised were found to have reduced levels of state anxiety, decreased levels of mild-moderate depression, reduced stress, and reduced severe depression when used as an adjunct to psychotherapy (Biddle, 1993). According to Craft and Landers (1998) aerobic and non-aerobic exercise alleviated clinical depression, particularly severe depression. It could be that in the current study, those children who are more anxious and depressed are reluctant to participate in horsemanship as a group activity. They may be cautious in their interactions with people or individuals as a group, feeling the situation is too threatening given their symptoms of depression and anxiety. Another possibility is that boys who are anxious and depressed are too preoccupied by their emotional discomfort to engage in an exercise which involves an unfamiliar and perceived potentially threatening animal.

The third hypothesis stated that a child's conduct in a therapeutic horsemanship program would contribute to their self-esteem, frustration tolerance, and level of depression and anxiety. This hypothesis was not supported by the present study. Results indicated that a child's behavior and overall conduct are not affected by the horsemanship program. While this may be the case, it is possible that the GLAS measure used to assess conduct was not an adequate measure of conduct. The results of this study were not consistent with the literature. According to Tyler (1994), a clinical psychotherapist, adolescents with oppositional defiant disorder particularly benefit from equine therapy. She states that when an adolescent's focus is on a horse, much of their defensive behaviors subside. Additionally, adolescents who tend to desire control over their environment tend to relinquish this need while riding a horse and are therefore less likely to try to control the therapy session. In the present study, while the boys' behavioral conduct in the

horsemanship program did not have an direct influence on levels of depression, anxiety, self-esteem and frustration tolerance, it would be interesting to note whether the horsemanship program exerted an influence on levels of daily conduct among these emotionally disturbed boys.

The present study was intended to extend the work of Cawley, Cawley & Retter (1994), focusing on a child's self-concept in relation to a horsemanship program. The results of their study indicated no significance for enhanced self-concept as a result of participation in a horseback riding program. These findings were also found by Carlson (1983) who found that the therapeutic horseback riding program did not increase the boys self-concepts. Carlson noted, however, that while not significant, subjective reports from the students indicated a favorable experience in the riding program which seemed to enhance their self-concepts. In this regard, the results of the present study were consistent with previously mentioned studies. Self-esteem was not found to change as a result of the horsemanship program, children's conduct in the horsemanship program, or as a result of a bond experienced with the horse.

The results of the present study did not indicate any change in frustration tolerance as a result of the horsemanship program, a child's conduct in the horsemanship program or with the bond experienced with the horse. This finding was not consistent with Lambert's (1999) study which reported increased attention span, patience and responsibility as a result of an individual's bond with a horse.

Limitations of the Present Study

Participants in the present study were all boys. Therefore, its results cannot be fully generalized to girls. This is particularly important because in the general population, girls by nature are more interested in horses as an extracurricular activity. It would therefore be of interest to replicate this study with girls included as participants. Another limitation has to do with the minimal control over variables, such as length of time in the horsemanship program, due to the nature of this study as a program evaluation. Other activities which the boys at Green Chimney's participate in, horticulture and swimming to name a few, may have confounded the findings of the current study. These other adjunct activities may have a direct influence upon a child's anxiety, depression, frustration tolerance and/or self-esteem. This would limit the conclusions that may be drawn from the present horsemanship study.

Future Research Suggestions

Despite its limitations, the results of the present study pointed at several for future research. Replicating this study to include female participants may provide an array of new information given girls' natural affinity to horses in the regular population of children.

Another suggestion for future research is to replicate the present study using a suburban or rural population, rather than an urban population. This may greatly influence the outcome results given that children from suburban and rural communities have greater access to animals and therefore may have more familiarity and feel at ease with animals. Given their previous experience with animals, these children may indicate greater enthusiasm towards their involvement in a horsemanship program.

A final suggestion for future research is to develop a study where the experimental design includes two groups of children. One group of children would participate in a horsemanship program while another group of children, serving as a control group, would not participate in the program. Pre-test and post-test measures would be administered to both groups, allowing for more direct comparisons on the influence of the horsemanship program.

Implications of the Present Study for School-Clinical Child Psychology

Despite the aforementioned limitations, the implications of this study are to broaden the literature on the psychological effects of therapeutic horseback riding, therefore exerting its influence on the professional community. Once accepted by clinicians as an alternate means for achieving psychological well being, it is hoped that child psychologists working both in and out of the schools, will consider therapeutic horsemanship as a method of referring students as an additional or alternative therapeutic intervention for children with emotional disabilities.

Many have acknowledged the psychological and physical benefits of a therapeutic horseback riding program. While there have been numerous studies supporting the efficacy of therapeutic riding for improving aspects of an individual's physical disability, little research had been conducted to support the psychological benefits gained from such a program. This study was developed to determine if a program of therapeutic horseback riding could enhance self-esteem, frustration tolerance, and impulse control, as well as, decrease levels of depression and anxiety. The results of this research will help to broaden the literature on the psychological effects of therapeutic horseback riding, therefore

exerting its influence on the professional community. Once proven as an alternative means for achieving psychological well being, it is hoped that therapeutic riding programs will become increasingly more available as a method of offering an additional or alternative therapeutic intervention.

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Appendix A

Demographic Questionnaire

Directions: Please complete the items below.

Age: _____

Highest Grade Completed: 1st-3rd 4th-6th 7th-9th 10th-12th

Ethnicity: African American Asian Caucasian Hispanic Other

Before coming to Green Chimneys did you have any experience riding or taking care of horses? yes no

If you have ridden a horse before coming to Green Chimneys, how often?

1-5 6-10 11-15 16-20 more than 20 times

If you have taken care of horses before coming to Green Chimneys, how often?

once a few times more than 20 times

Do you participate in horseback riding at Green Chimneys?

yes no

If yes, do you have a favorite horse? yes no

Before coming to Green Chimney's did you have animals? Yes No

If yes what kind of animals?

Dog Cat Bird Other _____

Appendix B

Historical Questionnaire

Name: _____

DOB: _____

DOA: _____

Type of case: CSE ACS other _____Placement status: voluntary court mandated

If school placement-classification: _____

Medication on admission: yes no If yes, neuroleptics mood stabilizers other _____Currently on medication: yes no If yes, neuroleptics mood stabilizers other _____

Diagnosis on admission: _____

Diagnosis currently: _____ date: _____

Learning disabled: yes no

Verbal IQ: _____ Performance: _____ Full Scale IQ: _____

Bender/Beery: _____

Speech/Language services: yes no

Critical incident report:

most recent date: _____

 fighting physical aggression stealing property destruction fire setting AWOL sexual acting out accident/injury self abuse suicidal gesture suicidal verbalization animal abuse

Behavioral checklist on admission:

- tantrums delusions anxiety depression
 paranoid distractible hyperactivity other

Specific behavior problems:

- fighting school refusal stealing
 running away stealing

Pet experience:

- like animals favorite pet _____
 now or ever had a pet , If so, what did you do with that
 pet _____
 Like to work with animals

Appendix C

Rosenberg Self-Esteem Scale

Directions: Please indicate the degree to which you agree with each of the following statements:

	strongly agree			strongly disagree
1. I feel that I am a person of worth, at least on a equal basis with others.	1	2	3	4
2. I feel that I have a number of good qualities	1	2	3	4
3. All in all, I am inclined to feel that I am a failure.	1	2	3	4
4. I am able to do things as well as most other people.	1	2	3	4
5. I feel I do not have much to be proud of.	1	2	3	4
6. I take a positive attitude toward myself.	1	2	3	4
7. On the whole, I am satisfied with myself.	1	2	3	4
8. I wish I could have more respect for myself.	1	2	3	4
9. I certainly feel useless at times.	1	2	3	4
10. At times I think I am no good at all	1	2	3	4

Appendix D

Frustration Tolerance Measure

Directions: Please indicate the degree to which you agree with each of the following statements.

	Strongly Disagree				Strongly Agree
I cope well with failure.	1	2	3	4	5
The hassles of life really get to me.	1	2	3	4	5
I am often the last one to give up trying something.	1	2	3	4	5
I keep trying when things don't work out.	1	2	3	4	5
There's no such thing as a problem that can't be solved.	1	2	3	4	5
I keep a rosy outlook even when life seems to be a series of disappointment.	1	2	3	4	5
I am not depressed when I fail.	1	2	3	4	5
I persevere under pressure and adversity from others.	1	2	3	4	5
I keep studying the subjects in which I have not done well.	1	2	3	4	5
I tend to let others persuade me to do things I think are wrong.	1	2	3	4	5
I finish tasks I start, even when they are not very important.	1	2	3	4	5
I am not depressed by temporary setbacks or disappointments.	1	2	3	4	5

Appendix E

Youth-Equine Bonding Scale

Directions: Please mark each question as True/False.

I wish I didn't have to ride a horse.	T	F
I like to spend all my free time with the horses.	T	F
Sometimes I would feel lonely if I couldn't be with the horses.	T	F
My favorite horse gives me a reason for getting up in the morning.	T	F
My favorite horse knows when I'm upset.	T	F
For exercise, I would rather play a sport than ride a horse.	T	F
I never kiss my favorite horse.	T	F
My favorite horse does not know I like him/her.	T	F
I miss my favorite horse when I'm not with him/her.	T	F
I only think about my favorite horse when I am at the farm.	T	F
My favorite horse is like a family member to me.	T	F
I love my favorite horse.	T	F
I feel upset when other kids tease my favorite horse.	T	F
I would spend all day at the farm with my favorite horse if I could.	T	F
I talk to my favorite horse when I'm upset.	T	F
My favorite horse understands what I feel.	T	F
I get mad when other people ride my favorite horse.	T	F
I get don't care if someone yells at my favorite horse.	T	F
My favorite horse needs me.	T	F

Youth-Equine Bonding Scale (cont.)

I feel jealous when someone else rides my favorite horse.	T	F
My favorite horse shows me he/she likes me.	T	F
I wish I could spend all my free time with my favorite horse.	T	F
I think about my favorite horse when I'm in school.	T	F
Sometimes I feel scared when I ride.	T	F
I feel bad when other kids ride my favorite horse better than me.	T	F
I would rather be with my favorite horse than anywhere else in the world.	T	F
I hate riding when it's cold.	T	F

Appendix F

FARM G.L.A.S. SCORESAbility to Work in a Group Learning About Animals

5= Always gets along well with members of his/her group. Able to compromise and negotiate matters of the group with other group members. Can listen. Can stay in good control when other members are acting up.

4= Usually able to get along well with members of the group. Usually able to compromise and negotiate with other group members. Usually can listen. Usually stays in good control when other members are acting up.

3= Sometimes gets along well with members of the group. Is sometimes able to compromise and negotiate with other members – sometimes can listen, usually needs reminders to pay attention. Is sometimes able to stay in good control when others act up, but generally joins in.

2= Rarely gets along well with members of the group. Rarely is able to compromise and negotiate with others.

1= Never able to join in a group.

Improved _____ Same _____ Worse _____

Handles Animals in a Gentle Way

5= Consistently exhibits gentle touch with animals. Consistently exhibits good boundaries with an animal. Treats the animal respectfully.

4= Generally exhibits gentle touch with animals. Can exhibit some rough behavior at times. Usually exhibits good boundaries with animals, however, at times moves too quickly around animals.

3= Generally finds it difficult to touch animals in a gentle manner. Often has to be spoken to about his/her rough handling of the animal. Sometimes exhibits good boundaries with animals. Generally moves too quickly around animals.

2= Rarely treats animals respectfully. Usually handles animals in a rough way. Usually exhibits poor boundaries around animals by moving too fast.

1= Cannot be left alone with animals.

Improved _____ Same _____ Worse _____

FARM GLAS SCORES (cont.)

Ability to Talk to Others About the Topic

5= Always talks easily with others about the topic. Exhibits good boundaries in sharing information, does not interrupt others, or force information on them. Can listen to questions. Speaks in a voice that others can hear. Can function independently in leading a group.

4= Usually talks easily with others about the topic. Usually exhibits good boundaries in sharing information. Usually does not interrupt others. Usually does not force information on others. Usually can listen and respond to questions. Usually speaks in a voice others can hear.

3= Sometimes can talk with others. Sometimes exhibits good boundaries in sharing information. Sometimes can talk without interrupting. Sometimes can talk without forcing information on others. Sometimes can listen. Sometimes can speak in a voice others can hear. Needs much prompting to lead a group.

2= Is rarely able to talk easily with others. Rarely exhibits good boundaries in sharing information. Rarely can talk without interrupting. Rarely can listen. Rarely speaks so others can hear him.

1= Is never able to talk about a topic to others.

Improved _____ Same _____ Worse _____

Knowledgeable About the Topic Related to Animals

5= Very knowledgeable about the topic. Can answer questions, when asked, about the topic.

4= Generally knowledgeable about the topic and generally can answer questions.

3= Sometimes exhibits knowledge about the topic by occasionally answering questions.

2= Rarely exhibits knowledge about the topic. Rarely answers questions.

1=Is never able to talk about the topic to others.

Improved _____ Same _____ Worse _____

Appendix G

GLAS: Program Teacher Case Conference Report

Student: _____ Date: _____

Program: _____

Attendance	1	2	3	4	5
Involvement	1	2	3	4	5
Skill Level	1	2	3	4	5
Directions	1	2	3	4	5
Supervision	1	2	3	4	5
Behavior	1	2	3	4	5
Group Behavior	1	2	3	4	5
Completion/Resp.	1	2	3	4	5
Overall Adjustment	1	2	3	4	5