Abuse, Attachment and Animal Assisted Activities

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Abuse, Attachment and Animal Assisted Activities:
A Call for Research into the Healing Relationship

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Abstract

In the effort to take responsibly and effect positive change in the lives of our children, we must begin by identifying and applying the most effective methods to help them overcome obstacles to mental and emotional well-being. In conjunction with a limited number of quantitative studies, anecdotal evidence suggests that animal-assisted therapies and activities promote positive outcomes for children who have been physically abused and who have developed behavioral and emotional disorders. Chapter one will address the current state of the research on the impact of physical abuse on children’s physical, social and emotional beings. Understanding what we know about what abused children must cope with, chapter two will examine service provision under the current system known as the continuum of care. Finally, chapter three will introduce animal assisted therapy and illustrate the ways in which it can strengthen and support services that are already in place for children who are struggling with behavioral and emotional disorders that result from physical abuse. Before the argument for including animal assisted programs as a supplement to services currently provided can be made, this therapeutic approach deserves to be appropriately standardized and evaluated. Allocating more resources to research that will develop the breath and depth of knowledge in the field of animal assisted therapy is a necessary step in improving the quality of care.
Introduction

Within the past fifty years, great advances around understanding and application have come about in both the fields of child abuse and animal assisted therapy. Despite their seemingly divided roots, the these fields have moved closer together through their mutual growth in ways that have the potential to produce great changes in the way we provide services to children who have been abused, and particularly those children who have developed behavioral and emotional disorders concurrent with being physically abused.

I believe that advances in our understanding of how the body and the brain function and malfunction must inform the way we engage our children in their world. I believe that as a society, we have a responsibility particularly to those children who have been failed by their social supports, be it family or community, and who, as a result, have been deprived of their childhood in some way. I believe in finding innovative solutions that integrate a variety of disciplines in creative ways to address the needs of the whole child. I believe that my experiences have led me to see this synthesis of chemistry, biology, psychology, education and social work in relation to a very specific population of children: children who have behavioral and emotional disorders and concurrent history of physical abuse. I believe that for this group of children, animal assisted programs are useful when working through the challenges associated with their situation.

In their book *Ghosts from the Nursery*, Karr-Morse and Wiley (1997) offer an analogy that offers a way to think of the impact that different types of experiences have on a child, understanding each child as a small lake:

Each lake is different: the size and depth and breath of our lakes vary. Each is unique in its dimensions since birth. The parameters of our lakes are determined by our biological and genetic factors. The water in each lake is the fluid force of potential
life. Positive experiences serve as the wind and rain that enlarge the size of our lakes… But negative familial or social factors are like rocks in our lake… Numerous large boulders [such as early physical or sexual abuse] in a very shallow lake have a far greater impact in reducing the total volume of water than the same number of large rocks in a large and deep lake (p. 183).

The rocks in the lakes of our children are the detrimental experiences of physical abuse. Children who are physically abused will manifest any combination of effects in the areas of physiology, behavior and emotional development, clinical diagnosis, and attachment and family relationships that, without appropriate treatment, can prevent their development into the people they have the potential to be.

Through the formation of institutions to protect child welfare, our society has taken on the responsibility of removing the rocks from the lakes that are our children and replenishing the water that has been displaced by the experience. Despite the gravity of the impact of early alterations in brain chemistry and relational behavior, placing a child in a therapeutic environment capable of addressing the complexity of their needs can help the child to compensate in other ways. Unfortunately, the continuum of care model of service provision does not seem to account for the positive impact of stability in a child’s placement. By prescribing services in a standardized and stepwise fashion, the continuum of care may actually increase the negative impacts of abuse on children by reinforcing in the child the failure that is intrinsic to the system.

Animal assisted programs have the potential to be the wind and the rain to enlarge the lakes of the children, as they are one possible supplement to traditional methods of serving children in the care of child protective services. Practitioners have reported a number of positive outcomes through their work of integrating animals into the therapeutic and recreational settings of a child with behavioral or emotional disorders. Because much of the
research that supports positive outcomes for animal assisted programs is somewhat limited by
the novelty of the field and the challenges of measuring success across programs and
diagnoses, the bulk of the evidence offered in this third chapter is anecdotal and offered out of
my own experiences facilitating animal assisted activities at Green Chimney’s Farm and
Residential Treatment Center in Brewster, NY.

Given this progression of thought, chapter one will address the current state of the
research on the impact of physical abuse on children’s physical, social and emotional beings.
Understanding what we know about what abused children must cope with, chapter two will
examine service provision under the current system known as the continuum of care. Finally,
chapter three will introduce animal assisted therapy and illustrate the ways in which it can
strengthen and support services that are already in place for children who are struggling with
behavioral and emotional disorders that result from physical abuse. Ultimately, more research
is needed on the merging of these two areas of study, but a solid foundation has been laid and
we are obliged by a social responsibility to our children to push forward.

In the effort to take responsibly and effect positive change in the lives of our children,
we must begin by identifying and applying the most effective methods to help them overcome
obstacles to mental and emotional well-being. If the continuum of care approach to employing
services is maintained, more creative and constructive treatments are needed to ensure that
effective treatment is employed the first time a child encounters these services. In conjunction
with a limited number of quantitative studies, anecdotal evidence suggests that animal-
assisted therapies and activities promote positive outcomes for children who have been
physically abused and who have developed behavioral and emotional disorders. Before the
argument for including animal assisted programs as a supplement to services currently
provided by DSS can be made, this therapeutic approach deserves to be appropriately standardized and evaluated. Allocating more resources to research that will develop the breath and depth of knowledge in the field of animal assisted therapy is a necessary step in improving the quality of care.
Chapter One

When looking to understand the ways in which treatment can improve for children who have been abused, the literature from this field can be a worthwhile starting point. Multidisciplinary advances in research around the impact of physical child abuse have revealed implications for the physiology, behavior and emotional development, clinical diagnosis, and attachment and family relationships of the child.

Since the understanding of its importance as an issue of public health has grown, so has the body of research surrounding all aspects of child abuse. First, it is important to understand what constitutes abuse. For the purposes of this paper, child maltreatment will be defined as “any recent act or failure to act on the part of a parent or caretaker which results in death, serious physical or emotional harm, sexual abuse or exploitation, or an act or failure to act which presents an imminent risk of serious harm” (NCCANI, 2003). More specifically, a physically abused child will be defined as “any child younger than 18 years of age that has experienced injury or risk of injury as a result of having been hit with a hand or any other object or having been kicked, shaken, thrown, burned, stabbed, or choked by a parent or parent substitute”, as specified by the third National Incidence Study (Kaplan, Pelcovitz & Labruna, 1999). This definition takes into account both a standard for harm and for endangerment, defined as ‘experienced injury’ and ‘risk of injury’ respectively, and it represents a more objective definition than those that use perpetrator’s intention or violation of cultural norms as defining standards (Tzeng, Jackson & Karlson, 1991). Though each state is responsible for constructing its own legal definition of each of these terms, the above classifications address the minimum elements of operational definitions set forth in research.
The next step is to understand the demographic of the population impacted by abusive action. The National Clearinghouse on Child Abuse and Neglect Information found that in 2001 some 903,000 children were maltreated, and 19 percent of these children were physically abused (NCCANI, 2003). This means that in one year, investigations by child protection agencies across the country found that over 171,000 children had been subjected to direct or implied physical violence at the hands of their caregivers. It is also reported that incidence of physical abuse peaks for those children in the 4 to 8 year old age range (Kaplan et al., 1999), and overall, the rate of victimization for all categories of abuse is inversely related to the age of the child, such that 28 percent of victims are age 0 to 3 years, which indicates that it is the youngest and consequently most vulnerable of our children who suffer disproportionately (NCCANI, 2003).

These statistics are striking as they stand. However, it is important to consider that these numbers are only measures of those children whose abusive situation has been investigated and identified by a child protection agency. It is likely that there is a substantial demographic of children who are living with histories of abuse that go unreported. This has two important implications for research.

Generally, there is great difficulty in obtaining a varied sample from which to study the effects of physical abuse on children, so studies tend to rely on samples of children drawn from these social service and child protective agencies because the groundwork of substantiating the abuse according to the standards of the operational definition has already been documented. These children come to be known as abused by agencies based solely on the manifestation of symptoms of abuse- physical, emotional or psychological impairments. This eliminates from study those children who may have been abused but who, for whatever
reason, come through without observable impact. One study found that not all abused children become aggressive and that many instead withdraw into internal worlds, which is logical upon consideration that there are individual differences in the way children internalize and cope with abuse and trauma (LeSure-Lester, 2000). It is possible that later difficulties, particularly in the realm of interpersonal relationships, may develop in such children, but there is no significant body of research to generalize such outcomes. These children tend to escape the attention of the system, and consequently of researchers, because of the unlikelihood that a parent would over-report any incidence of abuse to authorities (Dodge, Bates, Pettit & Valente, 1995).

Additionally, researchers point out that children identified by such agencies are primarily from backgrounds of low socioeconomic status (Tzeng et al., 1991). Presumably, this is due to increased reliance on publicly funded agencies for health care and educational services by these families, creating a situation where potential child abuse is more often reported and investigated in comparison to a wider sample of the population. Again, this leaves open the possibility that a significant population of higher SES children present different issues and outcomes related to the experience of abuse but remain unidentified (Finzi, Har-Even, Ram, Shnit, & Weizman, 2001).

Bearing in mind that current research is based on these children who are presenting symptoms, a number of researchers across disciplines have found that the impact of abuse is mediated by both biological and environmental factors.

**Physiology**

From the earliest days of fetal formation, an abusive environment can have a dramatic and lasting impact on the developing child. Before a child is born, it must develop all of the
neurons that will ever make up this incredibly complex organ that is the human brain because so few neurons will be formed after this point (Karr-Morse & Wiley, 1997). Postnatally, the human brain begins organizing these neurons into distinct neural pathways, a dynamic system of synapses between dendrites that are rapidly formed and trimmed back by the way in which the child is able to interact with its environment. Some of these pathways evolve as the child continues to grow and develop, while others, such as speech and sight, are malleable only during a specific window of time and are essentially set once this critical period has expired (Karr-Morse & Wiley, 1997). While any stress on the developing brain during these critical periods falling in the first 24 months of life has the capacity to suppress such development long enough to prevent it from ever occurring, the areas within the mature brain that retain plasticity are highly affected by stress response as well.

The stress response itself is not damaging but is a needed mechanism of both preservation and learning. When there is a discrepancy between what the organism expects from the environment and what really exists in the environment, a series of neurotransmitters are released that activate biological and behavioral responses. When stress is the result of an environmental challenge that is within the grasp of an organism to overcome, learning occurs. However, when stress is the result of continual and insurmountable frustration generated by the environment as in the situation of children who are maltreated, it becomes detrimental. Abusive contact causes the child to become highly attuned to potential warnings of approaching danger, thus the child lives in a state of constant heightened awareness characterized by high levels of the asteroid hormone cortisol, and indicator of stress (Lowenthal, 1999). Chronic stress causes sustained activation of the stress response pathways and can cause functional alteration in the brain.
Much of the current research pertaining to the effects of stress on the developing brain centers on the hypothalamus, amygdala, septal nuclei, and hippocampus. Collectively, these structures make up the limbic forebrain and are believed to be responsible for regulation of affect, emotion, and attachment (Lowenthal, 1999). These structures cooperatively interact to serve as a mediator between the raw input of stimuli perceived by sensory organs and the generation of response by the prefrontal cortex. While this connection is circumvented in response to input of stress on respiratory or immune systems, all other environmental stressor input is channeled through the limbic-hypothalamic-pituitary-adrenal axis (LHPA) where higher order brain structures then process and interpret the experience and then generate a response (Fuchs & Flugge, 2003). The LHPA axis is central to an individual’s reaction to stress and the ways in which chronic stress affect its functioning are of great interest when addressing the impact of child abuse on the victim.

One quantifiable issue that has been the focus of a recent body of research concerns the effects of increased presence of a stress hormone, glucocorticoid (GCC), in the hypothalamic-pituitary-adrenal (HPA) axis. The HPA axis is the main neurobiological system that responds to stressors; however compiled research suggests that infant responses to stress are governed by a less-developmentally mature system that has a direct impact on the way in which the HPA axis will ultimately form (Bremner & Vermetten, 2001). This supports the suggestion that infancy is a time of high brain plasticity with respect to the neural systems responsible for stress response. When exposed to early stressors, infant subjects exhibited increased levels of GCCs in the brain, as well as an inability to stop the production mechanism in the amygdala. Increased presence of GCC leads to the development of fewer GCC receptors, which deactivate GCC and thereby eliminate the stress-related hormone, a
permanent change which impacts the subject for the rest of its life (Bremner & Vermetten, 2001).

The impact of this deficiency has been observed in adults who were victims of early abuse. Their brains exhibit changed hippocampal structure and function, which is particularly significant when the primary structure of the hippocampus as the center for memory is considered (Bremner & Narayan, 1998). The reduced volume of the hippocampus in these individuals indicates that there is reduction and deformation of neurons, as well as decreasing dendritic branching caused by high levels of GCC in the hippocampus. As adults, a certain number of common traits were still found to exhibit a significant influence in their personal and social lives, including depression, low IQ, and a variety of memory deficits, including alteration, fragmentation, and dissociation (Bremner & Vermetten, 2001). Thus it seems that an early environment in which the needs of a developing child are not met, or in which the child is insufficiently or adversely stimulated generates levels of chronic stress that effectively damage the brain.

Another known impact of stress is the stimulated release of high concentrations of noradrenaline and adrenaline, which participate in the regulation of emotional processes throughout the entire brain. When continually stimulated, receptors for these neurotransmitters become desensitized, weakening the biological response to the neurotransmitters and thereby altering emotional behavior (Fuchs & Flugge, 2003). Noradrenaline also serves as a secondary modulator of memory in the amygdala, such that when receptors become desensitized by the stress response, the memory function is affected as well (Fuchs & Flugge, 2003). In addition to being the seat of the experience of fear and source of the ‘fight or flight’ response, the amygdala functions to regulate attention, arousal
and emotional energy, to generate response to emotionally charged physical contact, and to connect facial expressions with corresponding emotional meanings, all of which are primary in determining our reactions to others and in developing healthy relationships at any age (Joseph, 1999). Based on the impact of the dual function of noradrenaline, structural alteration of the amygdala likely impacts more than just the effective regulation of the stress feedback loop.

The other structures of the limbic forebrain appear to be impacted as well. The septal nuclei are believed to be responsible for regulating impulses generated by the amygdala to ensure discrimination in social contact. In studying patients who incurred lesions in the frontal region of the brain, it has been found that full or partial destruction of the septal nuclei correlates with aggressive interpersonal contact and explosive violent episodes (Joseph, 1999). Given that deterioration due to stress is incurred primarily in the limbic system, and that the septal nuclei are an integral part of this system, it is reasonable to explore this as a possible neurobiological explanation for violent outbursts in abused or chronically stressed children.

Similarly, the dentate gyrus, a region of the hippocampus, is one of the few cites where new neurons are formed in the mature brain (Fuchs & Flugge, 2003). This leads researchers to identify the limbic system as the center of the molecular basis for new learning. Although it has not been determined that new learning is in any way dependant on neurogenesis, there is a demonstrated correlation between new learning based in the hippocampus and new neuron formation (Fuchs & Flugge, 2003). This implies that evidence of increased glucocorticoid production may not only result in heightened response to later
stress but also may functionally impair learning, thereby having a impact on more than just functional memory. (Bremner & Vermetten, 2001).

Current research demonstrates a clear correlation between stress and impaired neurological development. Due to the ethical considerations of brain research on human beings, much of what we understand about the brain today is based in animal research. The findings of research on rats, rhesus monkeys and other higher order primates is held to be transferable to human beings when results of functional impairment of a certain structure correlate with the effects found in human beings with acquired brain damage to the corresponding structure. Thus on the level of brain research, much of the information gained from studying close genetic relatives is highly relevant. Knowing the ways in which stress alters the neurochemical environment is important in understanding the manifest behavioral implications of this alteration. The altered biological responses generated by a brain exposed to the chronic stresses of maltreatment certainly have an impact on the way a child acts, both in educational and familial environments.

**Behavior & Educational Development**

Having established the alterations to brain chemistry that result from maltreatment, it is then necessary to see how these changes affect a child’s interactions in everyday environments. Studies examining the academic success of children who are abused yield findings that are not encouraging. One such study found that abused children scored lower on the academic measure of overall school performance than the non-maltreated comparison group, and seemingly because of this discrepancy in performance, also found that 55 percent of the abused children in this study were required to repeat a grade during their academic
careers as opposed to 24 percent of the control group (Wodarski, Kurtz, Gaudin & Howing, 1990).

To understand how it is that these academic difficulties relate to neurological damage, it is helpful to look at the relationship of abused children’s symptoms to those of children with more thoroughly studied behavioral and neurological disorders. Defined as those neuropsychological, academic and social emotional deficits that reflect major deficiencies in nonverbal reasoning, nonverbal learning disabilities are generally understood to be a consequence of damage to the brain by either neurological disease or adverse biological or environmental conditions before or after birth (Little, 1999). The potential relationship between nonverbal learning disabilities and early abuse becomes clear when the characteristics expressed by both groups are compared. Prominent profile characteristics that define nonverbal learning disabilities include limited problem solving abilities caused by the decreased capacity to connect cause-effect relationships and reliance on previously learned sequence of behavior, as well as severe difficulty adapting to new situations both as a result of low response to positive or negative feedback in a given situation and decreased capacity to develop concepts (Little, 1999). Each of these symptoms, shared by children who are abused and children living with nonverbal learning disabilities alike, are rooted in neurological structures and each have direct behavioral implications.

The difficulty surrounding problem solving is held to be a problem of memory at its core. As established, the limbic system is understood to be the neurological system that is most directly measurably impacted by the chronic stress of abused children. In addition to it’s afore mentioned role as an emotional regulator, many of the elements of the limbic system are highly involved in memory function, particularly the hippocampus and the amygdala. A
deformed hippocampus will not facilitate recall of memory as efficiently and predictably as would be expected under normal conditions. This deficit is particularly damaging in the academic environment according to cognitive psychology, the dominant school of thought in the field of human learning, which places great emphasis on mental processes in learning and development. The mind, according to this model, is much like a computer and an individual’s understanding and experience of her environment depends on her capacity to perceive, process, and later access information from the world around her. In order in order to navigate a cause-effect situation, information processing theory posits that the subject must first be able to encode and store the cause, then to encode and store the effect, and finally to recall both cause and effect to successfully determine the relationship between the two. In the case of hippocampal damage, navigation of the complex series of storage and retrieval mechanisms becomes a daunting if not impossible task, given the reduced volume and consequently reduced functionality of this structure.

Aside from causing difficulty in an academic setting, decreased problem solving capacity has serious implications for social behavior. Children who survive early abuse are also known to exhibit violent outbursts, sometimes related to oppositional-defiant disorder. (Karr-Morse & Wiley, 1997). When a child faces a conflict, be it internally, academically, or with a peer or adult, normal cognitive function allows her to recall previous experience and from this basis, to evaluate existing options and create original solutions to the problem. However, when a child does not have a well developed repertoire of positive solutions or does not have the capacity to access them, she will tend to resort to the most accessible behavior. Thus, violent behavior is often the result of perceiving the exhaustion other options for behavior, a symptom of reduced memory capacity (Bremner & Narayan, 1998; Slee, 1993).
Violent behavior may also originate out of frustration at an inability to express oneself. Language studies have found that abused children display deficits in both receptive language, the meaning that a child can make of the words spoken to her, and expressive language, the vocabulary available for a child to articulate herself to others (Kaplan et al., 1999). This indication of depressed capacity for accurate interpretation of the environment and for expression of understanding or feeling is particularly interesting given that aggressive and conduct disordered behavior have been correlated with expressive language difficulties among abuse victims (Burke, 1989). When observed in environments that are familiar to the participants such as the classroom and group setting, children who were abused were found to have significantly higher scores on aggression ratings by multiple observers in comparison to control groups of non-maltreated children, particularly among those children who were specifically physically abused (Cicchetti & Kaufman, 1989; Wodarski et al., 1990). Thus, when a child cannot make her emotions, needs, desires or frustrations known verbally, she will resort to another, often physical, means of expression.

The links between hippocampal damage, impaired memory function and behavioral outcomes offer an explanation for the finding that early and repeated exposure to violence negatively impacts a child’s capacity to develop reading, critical thinking, problem solving and communication skills which contribute to resilience and coping capacity in stressful situations (Massey, 1998). These behaviors have implications beyond the classroom. Along with academic difficulties, children who are physically abused tend to have greater difficulty forming positive relationships with their peers. Low achievement in school has been correlated with low self-esteem and low self-worth, and when these characteristics are combined with aggressive behavior, which has been specifically linked with peer rejection, a
child tends to have difficulty making and keeping friends (Bolger & Patterson, 2001). In general, maltreated children are found to be negatively identified more often and positively identified less often by their peers, and are also found to be given lower ratings on measure of positive interaction in play when compared to their non abused counterparts (Fantuzzo et al., 1998). This seems to be primarily related to the tendency of abused children to alternate between aggressive and socially withdrawn stances, behaviors that encourage dislike and rejection within peer groups (Haviland, Sonne & Woods, 1995; Bolger & Patterson, 2001). Physically abused children were also found to exhibit less self-control especially when interacting socially with peers and are more often considered disruptive in class (Fantuzzo et al., 1998). Essentially, the outcomes of these studies of children’s socialization point to the fact that children have a dramatic influence on the way their peers react to them. However, their negative behaviors appear to be the result of biologically rooted damage resulting from abuse in their lives. These children appear to have great difficulty in controlling the behavior that they present to peers on their own. As with academic difficulties, the causes and effects of peer rejection for abused children are closely related; children rejected by their peers are at greater risk for encountering adjustment problems later in childhood and through adulthood, just as development and adjustment problems logically appear to trigger negative peer response (Bolger & Patterson, 2001).

**Additional Clinical Diagnoses**

In addition to the more generalized behaviors associated with the impairment of certain neurological structures, children who experience these sorts of neurological and psychological traumas frequently demonstrate symptoms that, at some point in the process of
receiving service, result in clinical diagnosis. The diagnoses of posttraumatic stress disorder (PTSD) and the overlapping diagnoses of attention deficit hyperactivity disorder (ADHD) and conduct disorder (CD) are most common for victims of physical abuse, though other emotional and behavioral disturbances may accompany any or all of these.

Despite ambiguities in diagnosing PTSD in children, evidence for the prevalence of the disorder among abuse survivors is strong. A study of children in clinical and residential settings found that physical abuse alone indicated statistically significant elevated risk of post-traumatic stress symptoms despite the fact that few other distinct symptomatic differences were identified between those who survived physical abuse and those who had no history of abuse (Naar-King, Silvern, Ryan & Sebring, 2002). A national sample of women screened for a number of factors, and found that 54% of women who were physically abused as children had experienced a sufficient number of related symptoms to warrant the diagnosis of PTSD, compared to 11% of the non-abused population (Duncan, Saunders, Kilpatrick, Hanson, and Resnick, 1996). Likewise, Roesler and McKenzie (1994) found that increased presence of posttraumatic stress disorder, along with general trauma symptoms, depression, or poor self-esteem correlated with childhood trauma, particularly physical abuse.

As defined by the DSM-IV, posttraumatic stress disorder is precipitated by a severe stressor and is accompanied by symptoms falling into three categories: avoidance or numbing, reexperiencing, and increased arousal (APA, 2000). There are a variety of ways in which these symptoms may be expressed.

A child may exhibit avoidance or numbing through an unwillingness or difficulty talking about the traumatic event, periods of mental absence, freezing, trying not to think, expressing little or no memory of the event, unremitting sadness, depression or withdrawal.
(Silvern et al, 1995; Cohen, 1998). Symptoms such as freezing and dissociation can be thought of as carry-overs, or coping mechanisms that were in some ways helpful in the face of trauma. For a child who cannot respond to the urge to escape danger by physically fleeing, freezing physically can give the child time to figure out what is happening to them and to come up with a way to respond. (Lowenthal, 1999) Likewise, in the face of ongoing abuse, the ability of the child to separate very upsetting or painful memories from their conscious awareness can be an essential protection from the emotional strain of the trauma (Lowenthal, 1999). If these coping mechanisms continue to operate on a consistent and unremitting basis, they have the potential to become impediments to normal functioning.

Reexperiencing is often evidenced by frequent talking about the event, recurrent nightmares of the event or real-time flashbacks in which the child feels as if the traumatic even, in whole or in part, is happening again, intense reaction to triggers associated with the event, as well as post-traumatic play, in which “children repeat the fragmented impressions of trauma” in a compulsive way (Silvern et al, 1995, p52). In any form, reexperiencing increases the child’s anxiety level both in the moment of experience and in the times between when the child may be aware that she could be overcome by these feelings at any moment. Reactions to triggers also may reduce a child’s trust and comfort of their environment. For example, one girl who had been abused by her father had episodes of reexperiencing her emotional reactions to the beating that were triggered by seeing a certain model of blue car, the car that her father had owned (Rowan, Foy, Rodriguez & Ryan, 1994). Because of this associated response, she began to distrust the control she had over her own responses to the world around her.
Aggressive outbursts, difficulty sleeping, night terrors, hypervigilance, excessive worry or nervousness, exaggerated startle response, and somatic complaints of physical ailment characterize the third major symptom, increased arousal (Silvern et al, 1995; Cohen, 1998). As with avoidance, particular characteristics of autonomic hyperarousal may have helped the child to avoid pain in the abusive environment. Being highly attuned to danger and sensing the slightest change in the behavior of a caregiver provides a child with some opportunity for psychological defense against threats, but over time, this constant stress impacts the functioning of the brain (Lowenthal, 1999).

There are a number of challenges for practitioners in diagnosing PTSD. While the DSM-IV is clear about the number and duration of symptoms required from each category, there is no instrument that quantifies levels of symptomology or that accounts for discrepancies in symptom presentation due to developmental factors (Cohen, 1998). Additionally, there are a number of symptom clusters that overlap with other commonly diagnosed disorders such as attention-deficit hyperactivity disorder (ADHD) or conduct disorder (CD).

Many of the PTSD indicators for intense arousal and avoidance are also shared with the defining characteristics of ADHD: poor attention span, exhibition of impulsive behavior, limited self-control, and hyperactivity, as well as aggression, defiance, sudden mood changes, and irritability (Katcher & Wilkins, 1994; Pary et al, 2003). This grouping of deficits oftentimes translate into limited social skills and difficulty getting along with others, which can mean great difficulty relating both within their families and within peer groups (Katcher & Wilkins, 1994). Particularly for the physically abused child, symptoms of hyperactivity and
inappropriate behaviors may be safeguards against intimate relationships that make them vulnerable by reducing their perceived safety and control (Lowenthal, 1999).

In another related situation, PTSD may be the cause of behaviors attributed to conduct disorder. Conduct disorder is understood to be a persistent pattern of behavior in which a child or adolescent ignores the basic rights of others and breaks major norms or rules of society. Symptoms may include, but are not limited to, destruction of property, physical cruelty to animals or people, frequent physical fights, manipulating or taking advantage of others, frequent outbursts, and impairment in social, educational, or familial functioning, and is a diagnosis often applied to children who are found to have survived chaotic or violent community or family situations (Katcher & Wilkins, 1994). Some of the self-management skills that are recommended to improve CD behavior include finding and using ways to calm down, and developing ways to obtain pleasure through socially constructive channels.

These are characteristics that overlap heavily with hypervigilance aspect of PTSD, indicating that some children may be diagnosed with ADHD or CD when they would be more appropriately diagnosed with PTSD. In fact, the correlation between stress and impaired neurological development rests heavily on research conducted on adult survivors of PTSD inducing traumas, such as physical abuse, sexual abuse, and combat exposure. It is significant to note that children who are diagnosed with PTSD may be plagued by these symptoms for the entirety of their lives if the event is not processed and if they are not taught positive coping skills. Regardless the diagnosis, the implications of these behaviors for children who have a history of physical abuse can be debilitating, not only impacting the child in the educational environment, but also potentially increasing isolation in social and familial contexts.
Attachment and Family Relationships

Equally influential in the process of a child’s development are the emotional ramifications brought about by physical abuse. In fact, much of the writing in recent years references insecure patterns of attachment as a primary factor mediating the negative outcomes of early child abuse. Attachment theory is understood to describe the way in which the behavioral organization and personality of the child are impacted by the child-parent affectionate bond (Finzi, Cohen et al., 2000). Essentially, the nature of the child’s early experiences with their caregivers determine that child’s internal representations of self and other, and consequently will inform and influence subsequent relationships throughout life. Secure attachment, the preferred relational state, is based on the ability of the caretaker to be emotionally responsive while effectively and appropriately meeting the physical needs of the child. When this attachment style is internalized and becomes the basis for later interaction, securely attached children will have better problem solving abilities, greater empathy and cooperation, and higher cognitive performance than those with insecure attachments (Finzi, Har-Even et al., 2001).

Physically abused children are characterized primarily by an avoidant attachment style, with 88 percent demonstrating avoidant attachment in comparison to just 8 percent of their non abused counterparts who exhibited avoidant attachment (Finzi, Cohen et al., 2000). This is problematic because it is theorized that avoidant attachment leads to increased risk for antisocial behavior and sustained suspicion toward others. Avoidance develops as a result of early experiences with an attachment figure that provides the only known protection but who is also a source of danger. This style of relating is believed to develop as a defense against
rejection, hostility, prolonged lack of responsiveness, or inadequate provision of a secure base for attachment on the part of the primary caregiver (Finzi, Har-Even et al., 2001). These studies found that “dysfunctional strategies children adopt in responding to their parents are manifested also in other social relationships,” meaning that children who begin these relational patterns early are at greater risk for more difficulties in the arena of social functioning (Finzi, Har-Even et al., 2001). Thus there seems to be a link between the disproportionately high rate of peer rejection experienced by physically abused children and their internalization of an early attachment relationship that was threatening.

Fairbairn, a central theorist in the field of psychoanalysis, offers another theory around the attachment of infants to their abusive parents. His work centers around the understanding that all human beings are motivated by an internal drive to connect with people. This drive is so powerful that even children whose experience of connection with a primary caregiver is mostly painful will continue to seek that same sort of attachment (Mitchell & Black, 1995). Recent research into the function of the amygdala supports this theory. One of the purposes of the limbic system is to initiate a drive for connection, initially indiscriminately and then becoming more caregiver specific as the initial need for stimulation is satisfied. This drive has been found to be powerful enough that even human infants with physically abusive or violently rejecting mothers will vigorously pursue contact with such a mother (Joseph, 1999).

In his clinical work with abused children in the 1930’s and 1940’s, Fairbairn found that the children in his care were so loyal to their early experience of connection that they continued to prefer pain as their primary form of connection with others in all areas of their life.

In many ways, social information processing theory is an ideological relative to Fairbairn’s theory. Social information processing theory posits that the human child develops
a psychologically constructed sequence of mental mechanisms used to respond to social cues. This process begins with encoding, which is being selectively attentive to environmental elements, after which comes interpretation, the making meaning of these cues. Next the child engages in response accessing and response evaluation, anticipation of the consequences of possible responses, and finally enactment, whereby the child generates the determined behavioral response (Dodge, Valente et al., 1995; Price & Landsverk, 1998). According to Price and Landsverk, (1998) early experiences shape the development of this system and are derived from primary social experiences, as in caregiver availability, attachment, and the presence or absence of abuse which define the family situation. When needs of the child are insufficiently handled by the caregiver, the child comes to view the world of others and of self as negative, and consequently will develop negative expectations for future interaction based on memory. Abused children, additionally, will become hypervigilant, attuning themselves to any potentially threatening cue in the initial encoding step. Past experience will guide the child to misinterpret even ambiguous actions as dangerous and will respond in an aggressive behavioral enactment (Dodge, Valente et al., 1995; Price & Landsverk, 1998). Concluding the discussion of a study correlating physical abuse and aggressive behavior through social information processing patterns, Dodge (1995) remarks that “we have not addressed other mechanisms, such as neurochemical pathways” and goes on to hypothesize that “inquiry into these co-occurring mechanisms is not at odds with the current theorizing” (p. 237). As addressed in the earlier section on biological effects, abused children are likely also dealing with impaired mental mechanisms as a result of neurological damage sustained as the result of their abusive experiences. None of the four groupings that categorize the effects of abuse
stand alone in a child; all overlap in various ways, and so co-occurring effects often exacerbate each other.

Context

To return to the analogy offered in the introduction, this chapter has outlined the variety of ways in which the effects of child abuse are made manifest in the victims noted at the beginning of this chapter. Perhaps children from low socioeconomic status backgrounds deal with the rocks that have been added by their material deficits. Perhaps other children begin with lakes that are sizeable enough to swallow the ‘rocks’ of maltreatment without knowable impact. Either way, it is important to note that the development of the brain structure is not the sole determinant of a child’s aptitude to relate to his or her environment. The environment itself plays a large part in developing behaviors and organizational structures within the child. However, a child who has survived early abuse is at greater risk when placed in an environment that may not provide high enough levels of responsiveness and positive stimulation (Massey, 1998). While damage done to the developing brain early in life is difficult to reverse, it is still held that the negative implications of such a disadvantage can be overcome with the help of a secure, warm and supportive environment.
Chapter 2

If physical abuse is a factor that places ‘large boulders’ in the ‘lakes’ of our children’s minds, then the work of those seeking to help these children is directed at finding a way to remove the rocks and replenish the water that has been displaced by the experience. In other words, the primary goal of intervention with a child who has been victimized by physical abuse is first to secure a safe environment for the child, and then to encourage positive growth and compensation for any developmental deficits that may have occurred throughout the period of abuse. As evidenced by the number of possible negative outcomes of abuse outlined in the first chapter, it is logical that each child will be different in the ways that he is impacted by abuse. Consequently, each family and each child will differ with respect to the interventions and therapies that will most appropriately meet their needs.

Effective social welfare programs take into account the need for flexibility and individualization in provision of services. Limited by insufficient funding, lack of staff and incomplete resources, the majority of programs begin with a standardized intake procedure for assessing and evaluating reports of suspected abuse, and maintain the policy of following a prescribed menu of services throughout the family’s involvement with the agency. Regardless of the subjective quality of the agency’s program, the initial involvement of a child welfare agency is a crucial step in the process of initiating treatment for most victims of abuse.

This fairly recent addition to the social services system came about with the passing of the Child Abuse Protection Act in 1974, which stipulates the provision of federal funding for states in order to create and sustain public agencies whose goals are the prevention, identification and treatment of child maltreatment (Waldfogel, 1998). Each state has
developed its own system for child protection, though all follow a series of federal statutes that define the primary focus of the institutions as insuring the safety of children.

In recent years, many states have begun to move toward a family-centered model of service provision, a model that influences the manner and method of delivering services to both parents and children involved with child abuse cases. The Massachusetts Department of Social Services, for example, has recently published a number of statements around the reformation of the philosophy incorporating core practice values which are child-driven, family centered, community focused, strength based, committed to diversity and cultural competency, and committed to continuous learning (MDSS, 2003). In the context of addressing child abuse, this revised philosophy seeks to ensure the safety of the children identified as being in need of services while also recognizing that the child’s long term needs may best be met in the context of that child’s own family, and as such place a high value on “family stabilization and reunification” work (MDSS, 2002).

For the Department of Social Services in Massachusetts to open a case on a family, there must first be a report of suspected abuse, followed by an investigation in which sufficient evidence is gathered to substantiate the claim. After the basic intake, it would seem that the nature, severity, and duration of the abuse, the developmental level of the child, and the child’s relationship to the abuser, all of which generally mediate the experience and behavioral outcome of the child, would be the sole determinants in the level of involvement required by the state and the level of services provided. Presumably different initial services would be provided to a child for whom the history of abuse is limited to an isolated instance of physical violence perpetrated by someone outside of the home, as opposed to a those provided to child who has survived ongoing abuse at the hands of a parent or primary
caregiver. Appropriate action in the first situation may be as straightforward as keeping the child in the home, stipulating the termination of contact with the abuser, and providing limited outpatient services for the child. However, despite the complexity of the second situation, the initial course of action may be surprisingly similar in both cases.

This family focused approach has been one of the motivating factors behind the nearly universal provision of services along a continuum of care model. The basic philosophy of continuum of care comes out of the Adoption Assistance and Child Welfare Act passed in 1980 and updated in 1988, which states that children must be provided services in the least restrictive environment that appropriately meets their needs (Waldfogel, 1998). The preferred situation is to keep children in the home whenever possible and provide community-based services first, unless there are threats to safety, so as not to risk harm through broken family connections (Ainsworth et al., 2000). Consequently, children remain in kinship care, either in the home or in the care of relatives, in Massachusetts in approximately 75 percent of substantiated cases of child abuse (MDSS, 2004). In these situations, the work of DSS is to provide the family with the appropriate services to ensure safety of the children and the stability of the family, and to arm parents with the skills and resources to support the well being of themselves and their children.

There are a number of services that may be made available to families and children to this end. Instead of fully removing the child from the home, creative interventions aimed at alleviating the factors that lead to physically abusive behavior are attempted first. Interestingly, providing daycare for children has become a common service for DSS involved families. According to N. Michaels, Director of Children and Family Programs for the Massachusetts DSS, this intervention is beneficial in both reducing parental stress and
bolstering the child’s developmental needs. Day care removes the children from the home for a good part of the day and places them in a secure, structured environment where trained caregivers can provide developmental stimulation while monitoring for signs of continued abuse or behaviors indicative of the need for more intensive services (personal communication, April 1, 2004).

Additionally, the caseworker may facilitate a number of professionally administered therapies such as outpatient clinical services for the child, family therapy sessions, and parenting management classes. Parents may also be required to seek programs targeted at helping them to resolve issues in their own lives such as substance abuse, domestic violence, or mental health concerns. Congruent with the family focus model, the goal is to provide parents with the skills and tools to take care of themselves and their children.

These interventions do not always achieve the desired outcomes. There are a number of factors that have been found to influence the success of a family at following through with outpatient treatments, which underlies the need for continuation of services at a higher level of care. Failure of community-based services to achieve the desired outcomes is generally associated with a failure to attend to the prescribed course of treatment, which is the responsibility of the parents. As such, a greater number of children in a family, the reduced availability or negative involvement of a father figure, and lack of access to private mental health services have all been found to correlate with a greater need for residential services (Dierker, Nargizo, Wiseman & Hoff, 2001). Aside from family characteristics, the duration of abuse and relational patterns within the family have an effect on success. Continuum of care may be effective and appropriate for families experiencing isolated incidents of disturbance in an otherwise healthy family dynamic, however families experiencing chronic problems over 6
months or more are not as well-served: these families and children are significantly more likely to both seek out and remain in residential treatment than the families with acute cases (Dierker et al. 2001). While these characteristics cannot and should not be used solely to determine whether community based services will be attempted with a family, they can help to identify families who will need extra support and where placement options should be considered sooner rather than later.

When community-based services fail in the family setting, or when circumstances warrant immediate removal from the home, a child will enter the out-of-home care system, as is the situation for the remaining 25 percent of physical abuse cases in Massachusetts (MDSS, 2004). Foster care, assessment units, residential programs, transition to independent living, and group homes are all considered out of home placements.

Failure of in-home care, for most children, results in the move to a foster home (Ainsworth, Small & Stuck, 2000). In this new home, a child will be coping with the loss of attachment to her family, no matter how unhealthy these attachments were, while concurrently attempting to form some sort of relationship with a caregiver in an unfamiliar and often temporary setting. A child who has benefited from involvement in a securely attached relationship with an adult at some point in her past can be expected to form mutual attachments with a receptive adult within 12 to 18 months (Samuels, 1996). The likelihood is great that she will be moved before the end of this period, both because of the behavioral difficulties associated with children who end up in foster care and the operation of the system itself.

While in a foster placement, the child will continue receiving services through community-based programs, which assumes that these same programs were not successful the
first time because the child’s attendance was insufficient or the home environment was too unstable. The environment of the child does have an impact on the effectiveness of interventions, as therapy will accomplish nothing when the threat of abuse is still perceived by the child, or where the child remains in an actively abusive or dangerous situation. Duckworth et al. (2000) found that chaos within a community was highly predictive of the development of PTSD behavioral symptoms for children who witnessed or were the victims of physical violence. A child may shuffle through a few foster homes either until an appropriate child-caregiver fit is established, until parental custody is reinstated, or until the behavior of the child escalates and requires further services.

For those children whose behavior poses a serious risk of injury to self, family or community, or whose needs cannot be met in any other less restrictive environment, the prescription is residential treatment (MDSS, 1996). By the time most children reach residential treatment, they have failed to respond to a number of interventions aimed at preventing residential placement (Hussey & Guo, 2002). These children have often experienced a high number of placement disruptions, many having been through a series of foster homes that could not support them. The repeated attempt of unsuccessful interventions establishes a pattern of failure that becomes ingrained in the relational attitude of the child. This is to be expected when relationships are continually terminated before they are fully formed, and when further interventions fail to address and correct attachment deficits. Piling these developmental failures on top of each other will likely cause the child to present enough disruptive behaviors to result in their referral to residential treatment. Consequently, children who are referred to residential placements tend to have the most immediate and severe needs;
this is the last level on the continuum of care before children are referred to the state agency for juvenile delinquency or mental health services.

Residential treatment is intended facilitate the movement of the child back to the family, to a foster or adoptive placement, or to a transition to independent living program (MDSS, 1996). The work of residential programs is to employ time limited treatments with specific goals and interventions designed to stimulate the behavioral recovery of the child to the point where he or she can engage in relationships that are sustainable. At the beginning of the program, the residential treatment provider devises a specific plan for the child with the input of the family, a DSS representative, and any other professionals who have worked with the child being placed. The treatment plan may include individualized behavior programming, family therapy, group therapy usually with peers in similar living situations, individual therapy with psychologist and/or social worker, social skills training, and any other therapies specific to the facility (N. Michaels, personal communication, April 1, 2004).

Regardless of the method, treatment models for these children need to address issues around attachment and relationship development if there is going to be any reasonable hope of establishing a secure placement somewhere other than a residential program (Hussey & Guo, 2002). The healing of a child’s misconception around forming healthy attachments can best occur within the context of an established and supportive relationship. Challenges spring up particularly for the child who has been removed from the home; not only have the central trust relationships been violated and most likely terminated, they were poor examples of safe relationships to begin with. It is unlikely that a child who presents symptoms severe enough to require residential treatment has extensive access to secure attachments, either at the time of treatment or in their past. Often, the relationship between a therapist and a patient needs to
become this safe space for the child in order to facilitate disclosure and discussion. However, establishing this relationship can be a very long and involved process, requiring the investment of both time and financial resources that are often not available in state funded programs.

If attachment issues are not addressed directly in residential treatment, they will continue to affect children negatively. According to one young resident of an residential program, “boys cope with moving around by saying ‘after awhile you learn not to get attached’” (Penzerro, 2003, p237). The concern is that residential treatment centers, and the continuum of care method in general, may be reinforcing the unhealthy attachment patterns that are believed to contribute to the behavioral and emotional difficulties in the first place, and which may be responsible for negative out comes later.

The highly structured environment of a residential program can control the harmful behaviors associated with poor relational capacities, but returning to a less-structure environment can initiate their recurrence. This is of particular concern for young adults who age out of residential programs because of the exceptional number who leave out of home care only to end up chronically homeless later in their lives. Penzerro (2003) argues that there are a number of attitudes and problems that are both the reason for and the result of children ending up in the care of system placements. According to this research, psychological dysfunction, human capital deficiency, institutional disaffiliation, and lack of cultural identification are found to be prevalent among the chronically homeless, and children who have significant experience in residential settings share these tendencies (Penzerro, 2003). Often, these factors are born out of both the experience of physical abuse and the
impermanent nature of institutional placements that do not resolve the deep seeded issues that keep individuals from connecting meaningfully with society.

If it is true that the ability to work and live with others is the cement that holds society together, than the work of child welfare providers must center around providing services that promote these abilities in children. The goal of DSS is to provide quality cost-effective treatments that produce positive outcomes in a timely manner. It seems clear that financial restraints may be accompanying the family focus in implementing the continuum of care. Providers are going to need to be creative in finding ways to yield positive and lasting effects on their clients if the future of our children is going to look up.
Chapter 3

Children who end up in a residential treatment center are, in many ways, at the end of a line. As such, there are a number of demands placed on these residential treatment facilities that provide services for children with special behavioral and emotional needs with histories of abuse. The complicated pasts of their clients demand the coordination and effective delivery of a number of specialized treatment approaches to deliver the best possible care in the least restrictive setting. One creative solution in addressing these challenges is the involvement of animals in the lives of the children, both as treatment and as recreation. The practice of putting animals and children together therapeutically, known as animal-assisted therapy, is a growing field in which a number of potential benefits have been identified.

Employing animals in work with psychiatric patients was initiated in the late 1700’s by Quakers in England, where patients were found to show behavioral improvements when they cared for animals (McCulloch, 1983). Animals were used in other facilities throughout the years, but the field of animal assisted therapy as it exists today is attributed to an insight made by Dr. Boris Levinson in the mid 1960’s. Dr. Levinson, a psychotherapist who worked with children, inadvertently left his dog with an uncommunicative patient, and when he returned to the room he found the child engaged and talking to the dog (Reichert, 1998). This encounter sparked his interest in the role of animals in the therapeutic setting and his writing on the subject brought the field to light.

What is it about the human-animal bond that makes it useful as a therapeutic tool for children with behavioral and emotional disorders who also have a history of physical abuse? A quotation from Dr. Levinson’s work written in 1975, *Forecasts for the Year 2000*, reads:
Suffering from even greater feelings of alienation than those which are already attacking our emotional health, future man will be compelled to turn to nature and the animal world to recapture some sense of unity with a world that otherwise will seem chaotic and meaningless… Animals will become junior partners and friends, effecting a revolutionary transformation in man’s attitudes (Hines, 2003, p.8).

While his forecast many not hold true for all of society today, it is arguable that children with behavioral and emotional special needs live in something of the disordered world that Levinson predicts. They often come from backgrounds of chaos and turmoil, and the psychological effects of this stress are compounded by alienation from families and friends in their movement to residential treatment. Some children, when given the chance to turn to the animal world, will ‘make friends’ with non-human creatures and open themselves to potentially be transformed on some level by these interactions. While Dr. Levinson’s work was initially based on limited observation and prediction, there is a growing body of research that suggests that there are constructive physiological and psychological implications for positive interactions between humans and animals.

In the 40 years since, a field of research and practice has grown up around animal assisted therapies. There are a number of publications devoted to the human-animal bond, such as Anthrozoos and Society & Animals, as well as a number of articles and reviews on the subject appearing in journals such as American Behavioral Scientist and Journal of American Medicine. The study of the human-animal bond has generated centers devoted entirely to its study at a number of universities, such as Center on Interaction of Animals and Society at the University of Pennsylvania, the Center to Study Human-Animal Relationships and Environments at the University of Minnesota, and the Center for the Human-Animal Bond at Perdue University (Hines, 2003). The most instrumental group in defining and developing
research and practice around increasing human health and well being through relationships with animals is arguably the Delta Society, founded in 1981 (Hines, 2003).

The Delta society provides definitions of animal-assisted activities (AAA) as opposed to animal-assisted therapy (AAT). The established definition of AAA from *Standards of Practice for Animal-Assisted Activities and Animal-Assisted Therapy* (1996) reads:

AAA provides opportunities for motivational, educational, recreational, and/or therapeutic benefits to enhance quality of life. AAA are delivered in a variety of environments by specially trained professionals, paraprofessionals, and/or volunteers, in association with animals that meet specific criteria. (n.p.)

This definition encompasses a broad range of possible relationships, but the basic concept is that of a handler bringing together a patient and an animal without a specified treatment goal or technical record of the interaction.

The same *Standards of Practice* (1996) manual defines AAT:

AAT is a goal-directed intervention in which an animal that meets specific criteria is an integral part of the treatment process. AAT is directed and/or delivered by a health/human services professional with specialized expertise, and within the scope of practice of his/her profession. AAT is designed to promote improvement in human physical, social, emotional, and/or cognitive functioning. AAT is provided in a variety of settings and may be group or individual in nature. This process is documented and evaluated (n.p.).

The important distinction is that AAT is administered by a professional and is goal-directed. This is not to say that AAT is always preferable to AAA. In fact, there are many situations where the absence of a specific goal for the interaction provides a release for the client from within an environment that may be constantly ‘doing work’ on the individual. When possible, a combination of the two modalities is advisable.

The use of animals in a therapeutic environment is built on a few basic suppositions about the human-animal bond. The first understanding is that a relational connection between
humans and animals does, in fact, exist. The basis for this assertion is rooted in two theories that draw on biological responses to animal presence: E.O. Wilson’s biophilia hypothesis and the related social support theory (Beck & Katcher, 2003). The biophilia hypothesis maintains that human brains have become wired to be attentive to animals, as this was an evolutionary advantage when hunting and tracking were survival skills (Wilson & Kellert, 1993). Animals are seen as social supports in another perspective, based on research documenting the interaction of people and their animals. Individuals studied talk to their animals as they would talk to another person, and consider their animal a ‘confidant’ or a ‘member of the family’ (Beck & Katcher, 2003). Together, these theories form the central theoretical perspective that attempts to explain the existence of a human-animal bond.

Secondly, it is understood that there must be some level of identification between individuals and animals in order for this relationship to be used in a therapeutic manner. Evidence of this human-animal connection is very much present amongst children, given the prevalence of animals as central characters in children’s literature, movies & other media (Serpell, 1999; Beck & Katcher, 2003). Whether this relationship is authentically generated by the child’s desire for animal interaction, or by the adults who censor their exposure to media is not entirely clear; however, the outcome of identification is the same. In researching qualitative studies of children with traumatic abuse histories, there are a number of interviews in which children choose animals as the central characters in their often violent and reenacting symbolic play (Crenshaw & Mordock, 2004, Terr, 2003, Silvern et al., 1995; Rothenburg, 1960). One such interaction between a therapist and a severely abused six-year-old boy is recounted by Crenshaw & Mordock (2004):

‘The people in the town brought their pets to the store to be sold. Instead, the pets were killed.’ When this scenario became repetitive, the therapist suggested, ‘Lets get
the Animal Rights people involved to protect the animals.’ [The boy] agreed, but when the Animal Rights people showed up to take the animals, they would only permit the babies to go. [He] remarked, ‘The babies are scared by being loaded onto the truck. They don’t trust the Animal Rights people.’ [He] drove the truck down a hill and turned it over on its side. He had the driver load the baby animals onto a chute with a conveyor belt, and at the bottom of the pit, ‘They were chopped and ground into little pieces’ (p.7).

Using this interaction as a catalyst for further discussion, the therapist found that this particular child had a much easier time disclosing fears and emotions about his own safety and well being when he did not have to own them immediately. Thus the extent to which children identify with and project themselves on to animal characters can be highly informative and useful in therapy.

Supposing the existence of a human-animal bond and the human capacity to identify with animals in a therapeutically accessible way, it is possible to explore the benefits that this practice can have for children with a variety of needs in a number of different settings. One of the most interesting and innovative settings is Green Chimneys School- a residential treatment program with an 88 bed residential treatment facility situated within the Farm and Wildlife rehabilitation center in the midst of the rural campus. The farm is home to more than 380 animals, ranging from parakeets and hamsters to llamas and draft horses, all of which are cared for by a full farm staff and farm psychotherapist, Dr. Susan Brooks, as well as by six or so interns who come to learn and practice administering AAA here for one of three sessions each year. According to their website (http://www.greenchimneys.org/interactions/interactions.htm):

Green Chimneys sees its mission as providing care and concern of all living things and targets its services at restoring and strengthening the emotional health and well-being of children and families and fostering optimal functioning and independence. We strive to develop a harmonious relationship between people, animals, plants, nature and the environment through an array of educational, recreational, vocational and mental health services.
The philosophy and structure of the environment make Green Chimneys an excellent context in which to examine the positive outcomes that are believed to be associated with animal-assisted programs. The Delta Society outlines eleven potential benefits that therapists and clients may derive from animal-assisted interactions: empathy, outward focus, nurturing, development of rapport, acceptance, entertainment, socialization, mental stimulation, physical contact, physiological, and socio-spiritual enrichment (www.deltasociety.org/aboutaaat.htm). Overall, the observed outcomes can be divided into five general areas of well-being: physical, social/educational, behavior, emotional/attachment, and therapeutic relationship specific.

**Physical**

In many ways, animals can provide for the physical needs of children that, in a residential setting, would otherwise go unmet. Children are active beings who explore their worlds through their senses. They need to explore the limits of their bodies in a variety of ways, and they need to touch and be touched in appropriately affectionate ways. The animals in the farm setting provide children with a chance to interact affectionately, to experience the physiological benefits of the relaxing effect of that interaction, and to stretch and used their bodies outdoors in productive and fulfilling ways.

The human need for touch and contact is very important to developing children. However, in a residential treatment center, this level of contact is generally prohibited or significantly reduced from what most children need because of the nature of the program and for the safety of the children. Because any sort of affection or touching from an adult may stimulate anxiety, fear, or violent reactions in a child who has experienced abuse, Green Chimney’s places strict limits on the nature and duration of physical contact allowed between
staff and children. While completely necessary, this policy leaves children many children craving physical interaction, and this is something that can be found at the farm.

One staff member commented on the way she observed the children interacting with the animals: “the non-verbal process that goes on when children come and pet the animals is that you can stick your fingers right into the wool of a sheep and grab right onto it. It provides a solid tactile sense of ‘being there’. That in and of itself - the act of touch - is what begins the healing process.” (Mallon, 1994, p 462). When a child lives in a home with a family, there is a certain basic level of physical contact that provides reassurance and tactile stimulation. For the smaller children, the rabbits are just the right size to snuggle into their arms, and can be held and cuddled with ease. The bigger children find comfort in wrapping their arms around the strong neck of a horse, an animal that is sturdy enough to endure the embrace. The beauty of Green Chimneys is that each child has the opportunity to find the animals that they can most comfortably interact with. Here, hugging, cuddling, and other forms of affection are available in a safe and accessible form in animal companionship.

The benefits of physical human-animal interaction can be seen not only in the behavior of the children, but in their vital signs as well. One study found pet owners to have slightly lower blood pressure than the pet-free control group, and it has been followed up by other studies that support these initial findings (Anderson, Reid & Jennings, 1992). Another investigation examined the impact of interaction between humans and dogs as measured by both effect on blood pressure and the presence of neurochemicals associated with decreasing it. Reduced blood pressure is associated with a relaxed physical presence and calmer state of mind, important goals for children who are hyper-vigilant, anxious, or hyperactive. Odendall (2000) found that healthy human adults showed significant increases in β-endorphin,
oxytocin, prolactin, phenylacetic acid, and dopamine all stress reducing hormones, along with a drop in cortisol levels. While positive animal interaction was only found to have a statistically significant effect on increasing β-endorphin, oxytocin, and prolactin, the rest of the effects were statistically equivalent to the effects of quiet book reading (Odendall, 2000). Children who may not yet have developed skills or appreciation for quite reading, it seems, may be able to garner the same positive neurological effects through the more tactile and engaging activity of interacting with animals. This is particularly useful in the residential setting for children who are pre-reading, those with learning disabilities and those who are hyperactive.

While further research is needed to explore the validity of generalizing the results of such neurochemical responses in an adult population to children, the implications are suggestive of benefits for those being treated for stress related disorders. Additionally, studies examining the impact of these stress-reducing neurochemicals in ameliorating damage incurred to the HPA axis are needed to form a solid argument for specific neurological benefits of human animal interaction for such children.

Providing a context in which children can be calm, relaxed and quiet is very important amidst the bustle and stress of life at a residential treatment program, but proving opportunities for children to get outside and get dirty is just as developmentally necessary. Between hours in school, meetings with social workers and therapists, and chores around the dorms, time outside at the farm is a welcome break for many of the children at Green Chimney’s. In addition to providing a space for being in the fresh air and working with the animals, the Learn and Earn program gives residents the opportunity to access experiences that simulate interactions similar to those that will be encountered beyond the confines of
residential treatment. The Learn and Earn program capitalizes on both the benefits of employment for children in residential treatment as well as the chance to increase the time spent by children in the therapeutic environment. A study examining the impact of part-time, moderate intensity work programs for individuals in RTCs in the areas of academic, psychological and behavioral outcomes found support for the reduction of problem behaviors and stimulation of academic performance on the whole (Cone & Glenwick, 2001). The researchers are careful to point out that the program studied was set up with therapeutic goals in mind, such as encouraging work ethic under the guidance of concerned and involved adults within the community, and took into account the needs of the students in terms of duration and nature of the work to maximize individual benefit. Doing some hard physical work outside with animals and people gives a place for children to blow off steam, move their bodies, learn about the strengths and constraints of their body energy, and provides a purpose for helping another being (Green Chimneys, 2000).

Together, the physically beneficial aspects of the farm contribute to children’s recreational experience, emotional health, and independence.

**Social/Educational**

Due to the physical proximity of the farm, the residences, and the school, children constantly have the opportunity to engage with the animals on the farm both through independent initiative and structured programs. In order to fully engage the potential of the farm resources, each academic grouping has a 50-minute period of ridding & farm science class each week. All the children are allowed to come to the farm to participate in structured
lesson plans around the animals and their environments, and to interact with each other in this alternative social context.

When children are introduced to the farm, they are asked to follow only a few rules. They are not to go into or open the pens of any animal without checking with the supervising adult first, and they are to show respect to the animals with their bodies and voices at all times. When farm staff explains these rules, it is emphasized that following these rules will help keep the animals safe and comfortable in their homes, which we are visiting by being at the farm. These rules require children to control outbursts, impulses and actions, for a motivating reason: they know, or quickly learn, that when they yell or make drastic sudden movements, the animals become visibly upset, moving away from the child or startling. This immediate reaction helps children to make the direct connection between their behavior and the impact it has on their environment. Realizing that rules are in place to help them have fun and interact with the animals is good motivation for self-control, and it helps children to focus on the relatedness of their own actions and the actions of the animals.

Asking the children to respect the animals also illustrates boundary setting, and demonstrates the authority of the caregivers to establish a secure, comfortable living environment for living things. This environment may be an unfamiliar experience for children coming from disordered homes and neighborhoods where respectful behavior was not required of them or modeled for them. These rules actually simplify the environment for the child, clearly setting forth what is expected of them and why. If they behave in ways that are in conflict with the rules, they are removed out of concern for the safety of the animals, not to prove a point or simply because someone said so.
Once the child understands the ground rules for spending time at the farm, they then begin to learn about the different types of animals, their individual names, the basic needs of each animal, and the appropriate ways to interact with the animals. This again is an opportunity for empowerment. Children who do not often succeed in classroom environments often excel at the farm, finding that they can remember the names of each part of their favorite animal’s anatomy, that they can measure the grain required to feed the goats using their math skills, that they can find the weight of the guinea pig, and identify the different food groups that are part of a pig’s diet.

This success not only bolsters the self-esteem of the child by giving her tangible evidence of her ability to perform well in subjects like math and reading which may be particular sources of anxiety, their success can also increase the esteem of the teachers in the student. After many difficult days in the classroom, many teachers comment on how refreshing and inspiring it is to see that the children from their classrooms are actually capable of levels of achievement they don’t see daily on worksheets or in reading groups. This can improve teacher student relationships and make for a more positive and productive experience all around.

Working with the animals can help children to relate socially as well. In classroom groups, children need to cooperate to take care of some other living thing. The fact that two children don’t get along becomes secondary when a lamb has caught its horn in the fence and needs help getting free. Children are able to put aside their own small differences to work for the greater good of something external to them both, and so are often given a way to move past conflict. The farm is a key aspect in the educational environment at Green Chimneys.
Behavior

Part of the stated mission at Green Chimneys is to develop harmonious relationships between the child and the environment in which he exists. Because a large part of the child’s daily environment is the classroom, work that contributes the child’s the capacity and motivation to control his behavior is essential for learning.

Since the farm is seen as a privilege by most of the children, they are often willing to put more energy into maintaining good behavior for the entirety of their time at the farm than they may be willing to put in to sitting through a classroom lesson (Katcher & Wilkins, 1994). The behaviors observed in the classroom and those of the same children at the farm are markedly different. One class of 8-12 year old boys exhibited near complete inattention in the classroom, wandering from desk to desk, one yelling obscenities and removing his shoe to throw at the poster on the wall that was frustrating him. Just 25 minutes after this scene, the same group of five boys was at the farm, each with a sheep on a lead line, queuing up to walk them around the grounds in preparation for the upcoming 4H fair. There was no yelling, no removing of shoes, and any disobedience was on the part of the sheep. The boys learned to gently lead the sheep back to where they wanted them. They also noticed the tendency of the sheep to crowd together. The Farm Science teacher took that opportunity to explain the natural need for behaviors like flocking, and to show how they can be adapted to get the sheep to walk together in the show ring.

Often children with histories of sustained abuse take on a certain amount of responsibility for and identification with the behavior of their abuser (Crenshaw & Mordock, 2004). Part of the work is to teach children that they have control over themselves and only
themselves, and to empower them to make decisions about their behavior that will have positive consequences for them.

Empowerment is often achieved by encouraging the child to see the control they can exert over their environment by continually offering positive choices that can be made without conflict (Crenshaw & Mordock, 2004). Animal assisted activities are a great forum in which to do this. A child can choose which animal he or she wants to work with. Choices can be made around which chores should be done first, and how they should be completed. Again, the appeal of work with the animals causes children to be less confrontational so as not to lose their time at the farm.

Part of empowerment is also teaching children how to anticipate their negative reactions and to find ways to self-regulate when they feel they are getting angry or upset. To this end, Crenshaw & Mordock (2004) suggest asking a child in crisis “What will make you less upset?” or “What will help you to feel calmer?” For these questions to be effective, the child needs to have a sense of what it means to feel calm and what activities bring this feeling about in him. This is a situation where AAT can be a resource, particularly if a child has learned to identify the animals with positive and calm feelings.

Mallon (1994) undertook an interview and survey study of the children living at Green Chimneys. It was found that 67 percent of the children reported visiting the farm when they needed to feel better, and that they went to the farm more often when feeling sad, angry or upset because “visiting the farm helped to alleviate some of those feelings” (Mallon, 1994, p 461). The use of the farm setting and interaction with animals as a calming agent for the children is corroborated by accounts from adults working within the program. Teachers and other staff at a separate but similar program reported taking a child in crisis to the animal area
as a ‘therapeutic intervention’, thereby preventing the need to restrain or medicate a child (Katcher & Wilkins, 1994). Children who have learned to find ways to self regulate at the farm can be taught to identify and seek places and activities that generate the same feelings even when the farm is no longer available to them.

Many children do learn to appreciate the physical effects that the animals have on them. Though all the children in a community may not explicitly name the connection, their behaviors are telling. Just as at Green Chimneys, a study of another animal assisted program at a residential school revealed that no child was physically restrained while in the animal area, though by comparison to averages for other settings such as the classroom or residence halls there should have been 35 incidents of restraint used over the given time span studied (Katcher & Wilkins, 1994). These drastic changes in behavior across the school’s population indicated the presence of a number of short term positive behavioral effects of animal assisted activities for children in residential settings, such as decreased agitation, decreased aggressive behavior, better cooperation with adults, and increased behavioral control, even in other settings (Katcher & Wilkins, 1994). These effects, though limited in duration, can set up circumstances for positive interactions with peers, teachers, therapists and others, providing fertile ground for growing healthy relationships.

**Emotional/Attachment**

One of the difficulties in teaching children about relationships and teaching them to feel secure and supported in their attachments is the inherent demon of residential treatment, the need to process the termination of relationships. For most of these children, every important relationship in their lives has ended, and many have ended abruptly and under
stressful conditions. In addition to learning to process past separations, children must also be prepared for their own departure from Green Chimneys and the end of the relationships they have formed there. Within a system driven by the continuum of care principle, it is inevitable that children will go through a number of termination experiences as they move from placement to placement, hopefully on the road to permanency. Life on a farm provides a number of teaching opportunities around both separation and grieving.

While much of the work around emotional and attachment disorders occurs with a therapist who can help guide the child, there are spontaneous instances of emotional engagement that often set the stage for this therapeutic work, and may even be therapeutic in and of themselves. Many of the children will feel much more comfortable projecting their own fears about their lives and their care on to the animals outside of a goal-directed therapy setting. For example, one twelve year old boy engaged in a discussion with his Learn and Earn supervisor that turned out to be very reflective for him and helpful to the staff.

The staff member and the student, who will be called Josh, had been working together just outside the barn as a woman who had arranged to adopt a few of the lambs born that spring arrived. Josh watched as the farm director and another student helped her load the lambs and sent her on her way. He returned his attention to the trough, but after a few minutes began to ask about the fate of the lambs. Were they going to be sold to be killed and eaten? It was explained that some animals are raised for meat, but that all of our animals at the farm were pets and so they would never be eaten. He wanted to know where they would go, and after being assured that Mr. K finds great homes for them, he wanted to know how we could be sure. What if the person they go to live with decides they can't take care of them anymore
and tries to sell them? What if the person gets angry at the animal and tries to hurt it? How could we be sure that the new home was a good home for our lambs?

The staff explained that Mr. K always looked into the new farms for our animals carefully, and always made arrangements ahead of time to take back any animal that the new family decided they could no longer care for, no matter what. Beyond that, Josh was told, he was right. It was a matter of trust. He was reminded how much all the staff care about the animals, and how it was hard to see them go, but that they needed to move on so they could grow up in their own space.

On the surface, this interaction may not appear to be of particular therapeutic value. However, in the context of Josh's situation at the time, it was very relevant. Josh had recently been informed by his social worker that his discharge date was approaching and that he would soon be able to go live with the aunt that he had begun visiting with. Josh was expressing his concerns about his own approaching departure from the farm, and his fears about failing in his new home. This therapeutic teaching moment allowed him not only to express those fears, but to have them honestly and tactfully addressed without having to directly admit his fear, thereby making him vulnerable. Later that week, Josh told his social worker about the lambs, and how he trusted that they would be safe in their new home.

Communication and collaboration among the staff at a residential treatment center are crucial elements for helping children who have a poor sense of attachment to develop healthy relationship behaviors (Berlin, 2001). This can be a significant challenge for staff, particularly in facilities with high staff turnover. One way that animal programs can help is by providing a consistent point of interaction for the child and the staff. When a child develops a bond with one animal, that bond can be utilized by the entirety of the child’s treatment team, as was the
situation with Josh. Teachers may use extra time to visit the animal as an incentive for a child to achieve in class; dorm workers may take the child to visit the animal as a way to calm the child after a confrontation; nurses may ask to have the child hold the animal during a painful procedure; social workers may have the child interact with the animal during their sessions for a number of reasons. Positive effect is increase through the continuity of the relationship between the child and the animal within the other therapeutic relationships, a point that is particularly helpful when integrating new staff into a treatment team.

Just as new staff people arrive, staff, children, and animals also leave the farm. The process of grieving is one that is very present and real to the work of a residential treatment farm. Because there are a large number of animals, it is often the case that different children form attachments and bonds of various degrees to a number of different animals. As such, it is unlikely that they will survive a stay of more than 6 months without encountering the death of one of the animals they have grown accustomed to seeing, perhaps even a close ‘animal friend’. Dealing with a death in a residential treatment facility can be delicate, but it is also a very important and very teachable moment around a very pertinent subject for the children there.

A few years ago, one of the most well-known and well-loved therapy horses, Mickey, died quite unexpectedly of natural causes. The farm staff immediately met an initiated the protocol established for such situations. Social workers prepared to act in the capacity of grief counselors for any child who wanted to talk upon hearing of Mickey’s death. Those children who were known to have a particularly strong bond with this animal were pulled from class and told individually, and all of these children were invited to come spend some time together talking about and remembering Mickey. Each classroom was visited by the farm staff and a
counselor, who explained what had happened to the horse and stayed to answer any questions they might have. All of the children were invited to express their grief and sadness in whatever way felt most appropriate to them- Mickey’s empty stall became something of a temporary memorial, filled with stories, poetry, artwork and other thoughtful gestures.

Most importantly, however, the farm and riding classes were adapted for the week, to serve as a forum for discussions about loss and grieving in a context that was timely and relevant to all the students. This natural part of life on a farm presented the opportunity for the children to talk about how difficult it is to say goodbye to something that has been a consistent part of their life at the farm. It allowed them to understand that just because a being is no longer there physically does not mean we have to forget, and to see that it is okay to be sad or angry or confused about loss. The children are given the chance to process emotions and reactions around grief without having to talk explicitly about the families they have been removed from. With guidance, they can come to recognize that they are strong enough as individuals and part of a supportive community that can help them to cope with such mature and taxing experiences. For some of them, experiencing the grieving process in a healthy way encourages them to begin to explore their feelings around their own situation.

**Therapeutic Relationship Specific**

The developmental state of a child’s attachment response by the time they are referred to residential placement can be a serious roadblock on the path to forming a secure, nurturing relationship between the therapist and the client. The presence of animals both in the classroom, in therapy sessions, and in more generalized settings can be a very productive way
to encourage this sense of safety. Children often identify with animals, as they are perceived
to be dependant on others for their basic needs (Serpell, 1999). Different animals have
different levels of vulnerability and different natural defenses, just as the children do.
Allowing children to build bonds with animals can help to expedite this process. The
unconditional acceptance, lack of judgment and the physical comfort of being in close
proximity to an animal can ease the transition a new environment and help the child to
become comfortable and secure. This relationship with the animal can then serve as a bridge
to relationships with a therapist, particularly when that therapist also has a relationship with
the animal.

The therapist-animal relationship is one of the most important aspects of animal-
assisted programs in general, but perhaps even more so in the case of facilitating therapy. In
her triangular model, S. Brooks depicts the therapeutic relationship as an equilateral triangle
with the animal, the client, and the therapist at each of the connected points to emphasize that
what comes from each impacts the other (personal communication, June 15, 2003). It is
essential that the therapist be well versed in reading and interpreting the behaviors of each of
the animals used in therapy in order to help the child make sense of the feedback being given
by the animal. For a the mistrustful child who has experienced extreme vulnerability and
repeated disappointment, having an opportunity to see how a person behaves with another
living thing can give them insight into how they will be treated. Observing patient, gentile,
and responsive behavior toward animals may help children to recognize and trust that these
characteristics are present within the caregiver and thus help them to expect these responses to
be afforded to them in their interactions with the adult as well (Brooks, personal
communication, June 15, 2003). Similarly, for some children direct affection and nurturance
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can be too intimate or too intimidating to tolerate directly, but seeing that behavior modeled in the care of an animal can be beneficial through the inferred empathy response.

One of the many goals of the therapist is to develop strategies to help the child relax and control her behavior concurrent with contextualization of the trauma in a more realistic understanding of healthy relationships. Child victims of physical abuse have learned to be much more aware of the nonverbal cues of the person speaking to them rather than the actual language being used. This is related to hyper vigilance; in order to protect him or herself, the child learned to sense the mood of the potentially threatening parent from some distance and usually before the parent even. The child can be taught to use this awareness in a healthy way to gauge the reactions of the animals, but also learning that their behavior will influence the way that the animal reacts shows them that they are important and do have control over the way their interpersonal environment reacts.

Dr. Brooks recounts one situation where she did work around energy of approaching animals and, by extension, people. One boy, called Gilford here, had a particularly difficult time relating to his peers. She chose to use donkeys in her work with this boy because they are initially apprehensive around people by nature and require patient, non-aggressive approaches before they warm up and engage. Taking him into the pen, Dr. Brooks asked Gilford to approach the donkeys, and when they moved away, she was able to first help him read their body language before guiding him through the process of calming himself, thinking about why he wanted to approach them, and to be mindful of making the animals comfortable with his presence. After a few unsuccessful attempts, the donkeys rewarded Gilford’s efforts, allowing him to affectionately tussle their manes. This interaction served as a way for Dr. Brooks and Gilford to reflect on his relationships with his peers and discuss some more
successful approaches that he might try. Because talking about this difficult subject was done in the context of a non-threatening relationship with these animals that could not judge Gilford or have any reason not to like him other than the way he was approaching them (Brooks, 2001).

The therapeutic relationship is the binding factor in animal assisted programs. Without a context in which the child can process her experiences with an animal, the animal’s behavior towards her could easily be misinterpreted and lead to negative feelings or aggressive behaviors. The therapist can also guide the child to generalize the lessons learned from their interaction with animals to the larger context of their relationships with people. Animals can be very influential just in their presence, however it is the triangular relationship between the therapist, child and animal that has the potential to effect deep and lasting change in the mental and emotional health of a child.
Conclusion

Through anecdotal evidence, animal assisted programs have shown themselves to be effective in creating opportunities for treatment breakthroughs for children who have been shuffled through the range of DSS services and have found their way into residential treatment. Continuum of care may be effective and appropriate for families experiencing isolated incidents of disturbance in an otherwise healthy family dynamic, however families experiencing chronic problems over 6 months or more are not as well-served: these families and children are significantly more likely to both seek out and remain in residential treatment than the families with acute cases (Dierker et al. 2001). By the time children reach residential treatment programs, they have been through a variety of living situations which, for whatever reasons, have failed them. For most children, this means that their capacity to form healthy attachments has undergone additional injury, regardless of any unhealthy effects they may have suffered from the parental relationships that caused them to enter into the system in the first place. Consequently, these children are likely the most challenging children to work with, and the success of animal assisted programs in this situation offers hope in breaking these children out of the residential system.

Research on the psychological and behavioral implications of human-animal interactions faces many challenges in generating sound conclusions with reproducible measurements. While there is much debate about the validity of anecdotal research, certain initial observations can be deduced from it, and these early results encourage further inquiry.
into the value of AAT programs for children. Before research continues, there are a few challenges that must be addressed on the way to effective collection and reporting of data.

A small and intricately linked academic community researches this field. As such, many of the researchers are directly involved with the implementation of AAT programs, introducing an element of experimenter bias (Barker & Wilson, 2003). Despite the fact that there are standardized definitions of animal assisted activities and animal assisted therapy, delivery of these services is highly nuanced and dependant on interpersonal relationships between the client, the service provider, and the animal, as well as the environment and approach to AAT/AAA embodied by the facility (Barker & Wilson, 2003). Thus even when diverse samples are drawn from a program population, generalization of those results across populations served in other facilities is inappropriate. Likewise, generalizing the way that the positive aspects of interaction with animals will affect clients across various cultural backgrounds, personal histories, and even symptomatic presentations within given disorders can lead to unrealistic expectations of AAT (Beck & Katcher, 2003).

One of the challenges with researching AAT and AAA now comes in the form of the ambiguity about the procedures of patient-therapist interaction within the animal-assisted context. The fact that individual programs have been successful anecdotally indicates the need for collaboration among therapists in order to generate a standardized and specific method of service provision.

Another significant challenge is presented in the area of experimental design. The goals of AAT/AAA with the population targeted in this paper as well as the benefits espoused by the Delta Society tend to be relational and somewhat subjective in nature, thereby complicating the selection of variables and the degree to which they are related to the
outcomes they intend to measure (Barker & Wilson, 2003). While there are some instruments existing designed to measure effects on empathy or mental stimulation, it is often neither practical nor possible to include a sufficient number of measures to address which of the benefits are impacting behavioral improvement (Beck & Katcher, 2003). One of the greatest challenges in conducting research on this aspect of animal assisted therapy or activities is the complication of controlling external variables. As Kogan and colleagues (1999) point out, it is neither “feasible nor ethical to offer AAT in exclusion of all other special services” (Kogan et al, 1999, p120) when assessing the impact of this particular therapy on children with behavioral or emotional disorders. Consequently, the psychological and behavioral implications of human-animal interactions and AAT/AAA specifically are more appropriately explored in qualitative research, and through individual case studies and examples.

As we have seen, we may not be able to eradicate the impact that the experience of physical abuse has on our children. However, it is possible to reorganize the system of services that follows. Incorporating animals into the lives of children who have survived traumatic situations has the potential to help them recover and return to a healthy state of being which will promote growth and development. It is the relationship between the know effects of physical abuse on the development of the child and the need for more creative supplements to the current system of providing services to children with behavior and emotional disorders that lead us to take a closer look at the continuation and increased direction of research into animal-assisted activities and therapies.
References


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