

The Child Life Specialists' Perception of Animal Assisted Therapy Within a Pediatric  
Oncology Population

by

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When a child receives the life altering diagnosis of cancer, it is often the beginning of a whirlwind of endless hospitalizations, procedures, checkups, and a multitude of side effects related to the disease. All of these events, especially hospitalization, can be traumatic and stressful for a child. Animal assisted therapy (AAT) utilizes the human-animal bond in goal directed interventions to improve physical and psychological well-being in humans. Child life specialists are nonmedical personnel that provide education and therapeutic interventions, including AAT, that address the psychosocial needs of children and families during times of stress. The purpose of the current study was to understand child life specialists' perception of animal assisted therapy in a pediatric oncology setting. An online survey was distributed to child life specialists at 23 children's hospitals offering AAT. Twelve certified child life specialists (CCLS) responded to the survey and provided data about their perceptions about the value of AAT for pediatric oncology patients and their perceptions of the benefits of AAT on physiological and psychological responses during preparation for medical procedures and

during procedures. Participants from twelve different hospitals responded, with eleven reporting they perceive AAT to be very beneficial to pediatric oncology patients. All participants (N=12) reported AAT to be very beneficial for the physiological responses of pain, movement, and stress and also perceived AAT to be very beneficial for the psychological responses of mood/happiness and interaction/communication in a pediatric oncology setting. A thematic analysis of the participant's narrative responses revealed the following four themes related to their AAT program: 1) desire for expansion, 2) restrictions/limitations, 3) challenges, and 4) overall satisfaction. Implications for implementing AAT in the pediatric oncology setting, recognizing the benefits of AAT with the pediatric oncology population, and strengthening the research of AAT with the pediatric oncology population are discussed.



THE CHILD LIFE SPECIALISTS' PERCEPTION OF ANIMAL ASSISTED  
THERAPY WITHIN A PEDIATRIC ONCOLOGY POPULATION

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## CHAPTER 1: INTRODUCTION

When a child receives the life altering diagnosis of cancer, a whirlwind of seemingly endless hospitalizations, procedures, check ups, and a multitude of side effects from the disease beings. All of these events, especially hospitalization, can be traumatic and stressful for a child. According to the American Cancer Society, in 2009 there were 94,600 cancer-related hospitalizations among children under 17 years with hospitalization stays lasting eight days longer than most other pediatric conditions. The stress associated with hospitalization may lead to negative physiological and psychological consequences for the child (Tsai et al., 2010). Interdisciplinary teams of pediatric healthcare professionals, child life specialists, child psychologists, and more have developed multiple interventions to reduce the stressors and fears that can be associated with hospitalization and a cancer diagnosis. Some interventions include guided imagery, distraction techniques, deep breathing, clowning, and more. One of the more unique intervention strategies that has been designed to reduce these stressors is animal assisted therapy. Animal assisted therapy (AAT), utilizes the human-animal bond in goal-directed interventions as an integral part of the treatment process (Zilcha-Mano, Mikulincer, & Shaver, 2011). Growing evidence suggests that AAT may effectively complement cancer treatments by providing comfort and alleviating fears in pediatric oncology patients (Bibbo, 2013) as well as reducing other physiological symptoms and stress related responses (Tsai et al., 2010).

Over the last few decades, interest in the bond between animals and humans has increased and pet-facilitated therapy has emerged (Hines, 2003). Research has been conducted on this bond between animals and humans and indicates that the relationship

between people and pets promotes physical and emotional well-being. Animal assisted therapy involves the introduction of a companion animal to a patient with the expectation of the individual benefiting while the animal is present (Friedmann & Tsai, 2006). The goal of AAT is to reduce stressors that may occur in the hospital setting, decrease loneliness, and promote communication between the patient and healthcare team or parents, as well as reduce the negative physiological side effect that may accompany hospitalization.

### **Child Life Specialists and Animal Assisted Therapy**

In a hospital setting, the child life specialist staff is usually responsible for the coordination of the AAT program and AAT visitations. Child life is a nonmedical therapeutic service designed to address the psychological, social, and intellectual needs of pediatric patients (Bandstra et al., 2008). Certified child life specialists (CCLS) are trained to assist children and their families in successfully coping and adjusting to pediatric health care experiences. The primary goals of a CCLS is to reduce the impact of stressful or traumatic occurrences through play, preparation for procedures, normalization of the hospital setting, advocating for the family, and developmentally appropriate education of diagnoses or procedures (Child Life Council, 2007)

In order to meet the needs of patients and families in a pediatric hospital setting, certified child life specialists (CCLS) became central members of the interdisciplinary healthcare team. A primary responsibility of the CCLS is working with the patients and families before, during, and after procedures in order to educate and prepare in an attempt to reduce anxieties and fears. Preparation prior to procedures is suggested to alleviate anxieties and fears that have been identified and recognized to be impacting patient care

(McGee, 2003). A child life specialist promotes play, engages in emotional support, psychological preparation, and minimizes fears and misconceptions. Child life specialists play a pivotal role in facilitating the use of AAT in pediatric settings, as one of their primary responsibilities is to increase optimal functioning and decrease stress and anxiety. Research has documented that child life specialists using AAT as a nonpharmaceutical intervention that can reduce fears, decrease pain, and increase coping (Braun, Stangler, Narveson, & Pettingell, 2009). Many child life programs across the country have now incorporated AAT into their programs and are responsible for coordinating pet visits throughout the year (Bandstra, 2008). Although research supports the fact that child life specialists are now including AAT in their hospitals, little research exists on how beneficial the child life specialists perceive the AAT interventions to be as a therapeutic modality.

The current research study will expand upon previous empirical research by exploring the child life specialist's perceptions of the use of AAT within pediatric oncology population. It is important to consider perceptions of child life specialists because perceptions are shaped from experiences. Robert and Glenn (1951) defined perception as the state of being or the process of becoming aware of something through the senses. Perceptions of events, places, people, etc. are formed through experiences. In this study, the researcher asked participants about their perceptions of how beneficial AAT is to pediatric oncology patients. In order to develop perception of AAT, the CCLSs must experience with AAT interventions. A CCLS that has a preference for animals and seeks out interaction with them may have a greater range of experience and a more positive perception of AAT.

Pediatric oncology patients that have a more positive experience in the hospital may perceive their diagnosis to be more manageable and not as anxiety inducing. In order to make the experience more positive and less stressful, interventions such as AAT can be introduced to change perceptions of the hospital settings for pediatric oncology patients. Positive and happy experiences in a hospital setting from AAT interventions can influence the patient's perceptions of the hospitalization and can increase their overall well-being.

## **CHAPTER 2: REVIEW OF LITERATURE**

### **History of Human Animal Bond**

In-depth research on the bond between humans and animals began just a few decades ago in the 1970s in Scotland, but the concept was previously articulated by researchers Boris Levinson, a psychologist, and Konrad Lorenz, a zoologist (Hines, 2003). Boris Levinson is considered the father of studying the human animal bond (HAB). Levinson was one of the first people to use a dog with a child for a therapeutic purpose. He used his own dog, Jingles, with a child who was severely withdrawn. Jingles was used to help establish rapport with the patient, allowing Levinson and the child to work out the child's problems later (Nagengast, Baun, Megel, & Leibowitz, 1997). Levinson believed that as the world changed into a more chaotic place, people would be left suffering with feelings of alienation and would be compelled to turn to animals to recapture some sense of unity with a world that seems chaotic and meaningless (Levinson, 1975). Konrad Lorenz stated that the bond with animals is analogous with those human functions that go hand in hand with the emotions of love and friendship in the purest and noblest forms (Hines, 2003). These two researchers understood the importance of the HAB and were pioneers and catalysts for the research exploring human animal bonds.

Bonding is the forming of close, specialized human relationships that consist of behaviors that are recognized by all involved (Fine, 2010). Similar behaviors are seen in animals, which is why the term "human/animal bond" is frequently used to describe the relationship between a human and an animal. Those that care deeply for animals wanted to compare the bond between animals and humans to that of the infant/parent bond,

emphasizing that the human/animal bond is naturally occurring and healthy. Although there is no universally accepted definition of the term human/animal bond, multiple researchers have made contributions of characteristics they classify as necessary for the bond to exist. Tannebaum (1995) suggested that the bond must be continuous, bi-directional, and voluntary. Russow (2002) explains that the bond must be reciprocal, because the bond would not exist if the animal did not recognize the human. Russow (2002) also states that the bond must include trust from the animal's perspective, and increased caring and understanding of the animal's needs in order to increase overall well-being for both parties.

The human-animal bond is a mutually beneficial and dynamic relationship between people and animals that positively influences the health and well-being of both. While understanding the benefits of positive interactions with animals in our lives is intuitive for most, an emerging body of research is recognizing the impact the human-animal bond can have on individual and community health as well as the importance of human-animal interactions in the health care settings (Pet Partners, 2006).

### **Theoretical Foundation of Animal Assisted Therapy**

#### **Attachment Theory**

One of the most well documented benefits of animal assisted therapy is the promotion of an attachment between animal and human, which stems from an understanding of human-human attachment. Bowlby (1969) defines attachment as “an inborn system in the brain that evolves in ways that influence and organize motivational, emotional, and memory processes with respect to significant care giving figures.” Attachment is characterized by specific behaviors in children, such as seeking proximity

with the attachment figure when upset or threatened (Bowlby, 1969). Attachment is formed in the first few years of life and is a result of caregiver's treatment and attentiveness. The variables that most heavily influence who the child will become attached to include the speed in which a caregiver responds to the needs of the child and the intensity of the interaction between the caregiver and child (Ainsworth, 1973). Thus developing a bidirectional relationship; adult responding to child and child, in turn, trusting and believing in the adult to respond to him/her.

Attachment styles, as defined by Ainsworth (1973), can be secure or insecure. Secure attachments forms when the caregiver is constantly attentive to and in tune with their child's needs. This will help the child develop a healthy concept of self (Bowlby, 1969). If a caregiver is avoidant, dismissive, or ambivalent towards the child, this can cause insecure attachment to form with the caregiver (Bowlby, 1969). Secure attachments help to develop a positive self-perception, good communication patterns, and stable mental health. Insecure attachments can cause separation anxiety, avoidant behavior, and unstable emotional regulations (Ainsworth, 1973). Interactions between attachment figures who are available and supportive in times of need help develop both a sense of attachment and internal working models that are positive and optimistic (Bowlby, 1969). Mary Ainsworth (1991) explains that in an attachment bond, there is a need to maintain proximity, distress is evident upon separation, pleasure or joy is experiences upon return, and grief is experienced at loss. Bowlby (1969) explains that although most attachment figures are formed through a dyadic relationship when the caregiver responds to the child's innate needs, attachment behavior can develop and be directed towards a figure

who has done nothing to meet the physiological needs of the child. An attachment figure can be a parent, caregiver, sibling, peer, or even an animal companion.

### **Attachment and Animal Assisted Therapy**

According to a 2012 statistic from the American Veterinary Medical Association, there are approximately 70.1 million pet dogs in the United States and six out of ten pet owners consider their pets to be members of the family. Based on theoretical concepts of attachment theory, human-animal attachments are very similar to human-human attachments. The literature on human pet bonds indicates that pets often meet the four prerequisites for an attachment bond as defined by Ainsworth: proximity seeking, safe haven, secure base, and separation distress (Ainsworth, 1991). Based on attachment theory, three dimensions of human attachment towards pets have been identified: behavioral attachment, affective attachment, and cognitive attachment (Melson, Peet, & Sparks, 1991). Behavioral attachment consists of the child's activities with the pet such as play and caregiving. Affective attachment refers to the child's emotional expressions of interests and closeness to the pet. Cognitive attachment entails the child's ideas about the pet and its well-being (Melson et al., 1991). Melson et al. (1991) conducted one of the first empirical studies to study the three dimensions of attachment and pets. The results revealed for cognitive attachment, there was greater attachment to pets at higher grade levels, suggesting that as children grow older a pet may provide an important outlet for developing nurturing behaviors and ideas related to caring for others (Melson et al., 1991). When examining behavioral and affective attachment, the researchers concluded that younger children that were highly attached to their pets were reported by mothers and teachers to have fewer behavior problems at home and at school (Melson et al.,

1991). Lastly, the researchers stated that when children are in potentially stressful transitions or situations, such as a hospitalization stay, attachment to pets, along with attachment to other attachment figures, might provide a source of support that could alleviate the effects of stress on the child (Melson et al., 1991).

Since pets can be seen as a security-enhancing attachment figures (Geist, 2011), the attachment theory is an appropriate conceptual framework for the intended topic of animal assisted therapy. A study conducted by Triebenbacher, (1998) found that attachment behaviors such as proximity-seeking, initiating interaction, expression of affection, and thinking about the object of attachment were evident between children and their pets. Bowlby (1973) stated that attachment figures that are available and supportive in times of need foster the development of both a sense of attachment security and internal working models that are positive and optimistic. While the AAT animal is not their own, perhaps some of the same calming and attachment features exist to the child when an AAT dog is readily available. Understanding a child's attachment will influence appropriate intervention strategies and potential coping mechanisms for the child when they are in a pediatric health care setting. Although an animal cannot replace an attachment figure, the animal can serve complimentary roles of comfort, closeness, and security in the lives of children (Triebenbacher, 1998).

### **Family Stress Theory: ABC-X Model**

The Family Stress Theory, originally proposed by Reuben Hill (1958) uses the ABC-X model to explain why some families struggle in response to stressful situation, whereas other families thrive. The model gives two moderating variables that could explain the differences in the way families handle a stressful event; the support and

resources that families receive and the meaning they assign to the stressful or challenging event. In using the model, Hill (1958) predicted that a stressful event (A) interacting with the family's crisis-meeting resources (B) and the meaning or perception the family assigns to the event (C) could prevent or produce a crisis (X). When a family is experiencing a stressful situation, it is important to consider each component of the ABC-X model:

Stressor = A: The stressor is a life event or transition impacting the family unit, which produces, or has the potential of producing, change in the family's structure. A stressor is neither positive nor negative, but rather the family's perception and interpretation of the stressor. Several important factors related to the stressor include: (a) which and how many family members are directly vs. indirectly influenced by the stressor; (b) gradual vs. sudden onset of the stressor; (c) the severity of the stressor; and (d) length of time the family has to adjust to the stressor.

Resources and Strengths = B: Resources and strengths are described as the ability of the family to be flexible and unite, rather than erupt and dissemble, based on the circumstances. Resources and strengths have been described as the family's ability to prevent a stressor and hardships from leading to a crisis or disruption in the family system. These resources become the part of the family's capabilities for resisting crisis.

Perception / Definition of the Stressor = C: The perception or definition of the stressor is how the family interprets and adds meaning to the stressor. The family's outlook can differ based on their values, previous experience, or coping

methods. The family can either look at the stressor as a challenge to be met and dealt with, or they could see the stressor as uncontrollable and a catalyst to the family's demise. When a family is able to define the stressor as manageable, the family members tend to support each other and view the situation as less overwhelming and a hurdle they can conquer together.

Stress and Crisis = X: Whether or not a family will enter a state of crisis is dependent on the combination of the previous three components (the stressor, the resources and strengths of the family, and how the stressor is defined.) A crisis is reached when a family is unable to effectively cope with the challenges associated with the stressor. Not all stressors lead to a crisis, but healthy coping methods assist in avoiding X.

### **Family Stress Theory and Animal Assisted Therapy**

The ABC-X model provides a theoretical lens through which health care professionals can provide support to patients and families as they navigate and manage the stress associated with a cancer diagnosis and hospitalization through the intervention of animal assisted therapy. More specifically, animal assisted therapy interventions relate to the resources and strengths of the child and family (B) and can help change the perception of the stressor (C) with the goal of minimizing or avoiding crisis (X). In summary, animal assisted therapy provides an intervention for the child and family that can help minimize stress and negative hospitalization effects in order to avoid crisis.

### **Animal Assisted Therapy versus Animal Assisted Activity**

Animal-assisted activities (AAA) and animal-assisted therapies (AAT) are becoming increasingly popular as forms of therapeutic interventions in health care

facilities such as hospitals and nursing homes. In 1980, AAA and AAT were initially implemented among specific populations including those with various disabilities, children with autism, and hospital settings, and has grown more and more common in the United States, Canada, and Europe (Bouchard, Landy, Belles-Isles, & Gagnon, 2004). AAA and AAT have been described using other terms such as pet therapy, pet facilitated therapy, animal-facilitated therapy, or pet assisted therapy (Souter & Miller, 2015), but the most commonly accepted terms are animal assisted therapy and animal assisted activity. The following are formal definitions of AAA and AAT provided by the Delta Society (1996), a leading international, non-profit organization that provides training for AAA and AAT practices:

Animal assisted activity 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 (“Standards of Practice” 1996).

Animal assisted therapy 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 service provider working 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 (“Standards of Practice, 1996”).

Though the two sound very similar, animal assisted therapy and animal assisted activity (AAA) are two separate types of interventions. Animal assisted activities provide motivational, educational, recreational, and therapeutic benefits in different environments and settings such as hospitals, nursing homes, Alzheimer’s facilities, autism centers, etc. Animal assisted therapies provide the same benefits with the added bonus of specific therapeutic goals and objectives for the patients to accomplish in individualized or group therapy settings (Bibbo, 2013). Animals can promote activity by requiring feeding, bathing, walking, or playing, but in order for the interaction to be defined as animal assisted therapy, the animal must alleviate some type of problem and facilitate a therapeutic goal (Beck, 1996). Research has determined that both forms of intervention provide comfort and alleviate stress related emotions, while also decreasing depression and physiological symptoms during treatments or procedures in a hospital setting (Bibbo, 2013). Animal assisted activity is used more for comfort and calming interventions, while animal assisted therapy has a direct goal in mind for the patient and each intervention is individualized.

Animal-assisted therapy can be defined as a clinical approach that aims to foster the creation of beneficial links between humans and animals with both preventive and therapeutic goals (Bouchard, Landry, Belles-Isles, Gagnon, 2004). Brodie and Biley (1999) explained the rationale for the AAT approach is that animals naturally stimulate an attraction and attachment response in the majority of individuals, which affects their overall well-being. Simple actions such as speaking to an animal, caressing it, or giving

the animal a hug contributes to reducing stress and providing a source of creativity, comfort, surprise, and sometimes humor (Bouchard, Landry, Belles-Isles, & Gagnon, 2004).

### **Becoming An AAT Animal and Handler**

Becoming an animal assisted therapy or animal assisted activity animal and handler is no easy process. Many factors are considered and extensive training for the animal and handler is required. The animal and the handler are considered a team and undergo each training aspect together. Pet Partners, one of the nation's largest animal assisted interaction nonprofit organizations, has identified specific guidelines for both animal and handler that help to ensure safety for all parties involved, to promote positive human-animal interactions, and to improve physical, emotional, and psychological lives of the individuals they server with AAT or AAA (Pet Partners, 2016). Handler and animal teams are evaluated by trained professionals in order to become certified (Pet Partners, 2016). Animals that can be considered for therapy animals include dogs, cats, birds, guinea pigs, rats, horses/ponies, fish, and birds. Dogs and cats are most frequently used, but other animals can be used depending on the goal in mind for the therapeutic session. The following are qualifications set by Pet Partners that the animal must meet in order to be considered for therapy training:

“The animal must be at least 1 year old at the time of evaluation. The animal must have lived in the owner's home for at least six months and must be reliably house trained. The animal must be currently vaccinated against rabies and may not be fed a raw protein diet. The animal must have no

history of aggression or seriously injuring either people or other companion animals. This includes animals who have been trained to aggressively protect and/or have been encouraged to bite. The animal must demonstrate good basic obedience skills, such as walking on a loose leash, and responding reliably to common commands such as “sit,” “down,” “stay,” “come,” and “leave it.” The animal must welcome, not just tolerate, interactions with strangers.”

The criteria for prospective handlers are also lengthy and extensive. The following outlines the guidelines for becoming an animal assisted therapy handler as recommended by Pet Partners:

“The handler must be able to read their animal’s particular body language and recognize when their animal is stressed, anxious, concerned, over stimulated, or fatigued. The handler must demonstrate positive interactions with their animal by praising, cueing, encouraging, and reassuring the animal as needed. They must be able to cue or redirect their animal without raising their voice, forcefully jerking on the leash, or offering the animal food or toys. The handler must be able to make casual conversation with those they meet on visits while still being attentive to their animals, as well as guide the interactions of others with the animal in a professional and polite manner. The handler must also advocate for the safety and well-being of their animal at all times.”

Once the handler and animal have been evaluated and determined to meet these long lists of criteria, the animal will undergo a health screening and assessment. Following positive results for the health screening, the handler and the animal will attend training courses that teach proper handling skills necessary for animal assisted therapy visits. The training courses will teach the animal and handler how to interact in a variety of scenarios such as a hospital room, nursing home, classroom, etc. (Pet Partners, 2016). Upon completion of the training courses, the team is evaluated together by a team of trained professionals. The evaluations will assess the team's level of team functionality in a variety of scenarios (NRSA). If the animal and handler successfully pass the evaluations, they will then register through a nationally accredited website and receive placement for their future animal assisted therapy visits (Pet Partners, 2016)

### **Animal Assisted Therapy In a Pediatric Population**

It is well documented that the experience of hospitalization can be stressful for children and is often associated with pain, helplessness, fear, guilt, boredom and other negative emotions (Kaminski et al., 2002; Braun et al., 2009; Askin & Moore, 2008). In an effort to develop new means of helping children cope with hospitalization, animal assisted therapy has been integrated into many children's hospitals and pediatric units all over the country. Animal assisted therapy is now practiced in over 600 hospitals across the United States by medical professionals and handlers for therapeutic intervention purposes (Sobo, Eng, & Kassity-Krich, 2006). Although animals have been used for therapy purposes for centuries, the research on the effectiveness and benefits of AAT is limited to only a few decades. Few empirical studies have been conducted on the psychological and physiological benefits of AAT. The results of the limited empirical

evidence on psychological and physiological symptoms indicate that animal assisted therapy has been found to decrease loneliness, reduce stress and anxiety, and provide a source of self-esteem, confidence, and independence for the child (Kaminski, Pellino, & Wish, 2002; Johnson et al., 2008; Levinson, 1978; Odendaal, 2000; Weston, 2010; Pichot, 2007; Nagengast et al., 1997) The empirical evidence on the physical benefits of animal assisted therapy explains that the intervention has been found to decrease pain levels, increase physical contact, and promote social interactions and communication (Braun et al., 2009; Tsai et al., 2010; Nagengast et al., 1997; Kaminski et al., 2002). Animal assisted therapy can positively impact a hospitalized child in many ways. In the following sections, both the physiological and psychological benefits of AAT are highlighted.

### **Physiological Benefits of Animal Assisted Therapy**

#### **Pain Levels**

It has been hypothesized that therapy animals can decrease anxiety and the sympathetic nervous system arousal by providing a pleasant external focus for attention of a patient, and therefore decreasing the pain that a person is experiencing (Odendaal, 2000). Braun et al. (2009) examined the impact of AAT as an intervention for pain levels measured through various aspects including vital signs among children ages 3-17 years old. The researchers conducted a quasi-experimental intervention study to capture the differences in pain levels and vital sign indicators with or without the animal assisted therapy intervention (Braun et al., 2009). Baseline pain levels, blood pressure, and pulse rates were taken through the FACE pain scale and electronic medical equipment. The AAT group, or intervention group, underwent a 15-20 minute session with the AAT dog

and handler while the control group children were asked to each sit quietly for 15 minutes. Post-test measurements were taken for both groups after the 15-minute intervention or quiet time. The results found that the groups were both very similar at their baseline evaluations, but the intervention group had significantly lower pain levels at their post intervention evaluation. Pain reduction was four times greater in those children utilizing AAT as compared to those that relaxed quietly for 15 minutes (Braun et al., 2009). The researchers attributed this to biochemically-mediated neurologic and immune responses. In other words, exposure to a pet or friendly animal releases endorphins, which induce a feeling of well-being which increases the immune response and decreases pain (Braun et al., 2009). The researchers found no significant changes in the physiological responses of blood pressure and heart rate, but they attributed this to their small sample size (N=18). The results of this study indicate the importance of AAT animals for alternative pain interventions besides pharmaceutical measures.

Sobo et al. (2006) reported similar results to those found by Braun et al. (2009). Through a pre-post test, mixed methods design in a pediatric hospital, the researchers found that canine visitation with children in pain showed overarching themes that were based on reduction of pain, which resulted in decreased anxiety. The researchers divided the children into the AAT intervention group and the control group, which received no intervention. Both groups were measured before and after surgery using a child friendly pain and distress scale. Sobo and colleagues (2006) discovered that even though pain is subjective, the pre-post test findings clearly indicate that AAT interventions might bring about a significant reduction in physical and emotional pain, at least in children. These research studies are significant as healthcare providers search to find alternate solutions

to pharmaceutical drugs. In addition to the traditional use of pharmacological strategies to reduce pain, animal assisted therapy should be used as a therapeutic intervention to help children maximize their coping skill during painful procedures or experiences. This, in turn, may result in reducing pharmaceutical interventions and thus the potential for negative drug side effects of harmful medication errors (Sobo et al., 2009).

### **Heart Rate and Blood Pressure**

Hospitalization, needle pokes, or procedures can be a major source of stress for children. The stress associated with a child's hospitalization may lead to negative physiological reactions. Research has been conducted to assess the impact of animal assisted therapy on the heart rate and blood pressure of hospitalized children. Tsai et al. (2010) found that systolic blood pressure decreased before and after an AAT intervention and the decrease continued after the AAT intervention was over. These results suggest that the effects of the AAT visit lasted beyond the intervention itself. Diastolic blood pressure and heart rate increased during an AAT intervention, which is likely due to the physical activity, communication, and interaction with the dog. In previous within-subject design studies that showed cardiovascular benefits from the presence of a dog, children's cardiovascular stress indicators (heart rate) were lower while undergoing a stressful event, such as a procedure or physical examination (Nagengast et al., 1997) or reading aloud (Friedmann et al., 1983), when a dog was present, rather than when it was not present. Research conducted by Havener et al. (2001) found that the presence of an AAT dog was effective at reducing heart rate and blood pressure for children in distress prior to their dental procedures. Thus, the presence of an AAT dog has an impact on a

child's heart rate and blood pressure during a stressful event or even simply during an AAT intervention.

### **Cortisol**

Kaminski et al. (2002) found that hospitalized children experienced heightened stress, resulting in increases in salivary cortisol levels. Salivary cortisol levels have been found to be associated with the adrenocortical stress response, meaning that as a stressor arises, the body reacts and cortisol is released. When cortisol is released repeatedly, sustained high cortisol levels can destroy healthy muscle and bone, slow down healing and normal cell regeneration, interfere with healthy endocrine function, and weaken your immune system (Ebrecht et al., 2004). In a study conducted by Kaminski et al. (2002) salivary cortisol levels were measured before and after an AAT session. Although no statistically significant results were found, there was a slight decrease in the cortisol levels of the children that engaged in AAT. The slight decrease indicated that the AAT session may have reduced the stressful environment for the patients and their bodies were not releasing the stress hormone cortisol (Kaminski et al., 2002).

### **Movement**

Interaction and physical contact with an animal assisted therapy dog has multiple benefits. Increased movement and stimulation of the hospitalized child is one of the most well documented physical benefits of AAT. Movement and stimulation could include sitting up in bed, walking down the hallway, using fine motor skills to pet/scratch the dog, or stimulating the senses by petting the dog or allowing the child to be licked by the dog (The Delta Society, 2007). Informal observations in a study conducted by Tsai et al. (2010) suggested that the amount of physical exertion exhibited by a patient interacting

with an AAT dog was much greater than the amount of physical exertion exhibited by a patient when a human visitor was present instead. Increased physical activity has been found to lead to faster healing and better overall experiences during hospitalization (Tsai et al., 2010). Physical contact and some of the ritualistic behaviors associated with an animal such as rubbing, hugging, and cuddling are also important factors in overall wellbeing of a child (Triebenbacher, 1998). These natural forms of interaction with an AAT dog can initiate and increase a patient's amount of movement without the child even realizing it.

### **Summary**

Education about and awareness of the positive benefits of an AAT intervention on physiological responses are important for health care providers. This intervention strategy could potentially be enacted to decrease the stress in hospitalized children. As empirically documented, less negative physiological responses or reactions can lead to increased coping and faster healing in pediatric patients (Braun et al., 2009) Animal assisted therapy used as an intervention with pediatric patients can lead to decreased pain levels, decreased heart rate and lower blood pressure, less cortisol released during stressful experiences, and increased movement. These findings provide very promising results about the positive physiological impacts of AAT and warrant further investigated in order to increase support and utilization of animal assisted therapy in pediatric hospitals.

### **Psychological Benefits of Animal Assisted Therapy**

#### **Mood**

The psychological distress experienced by patients in the hospital has been found to encompass a wide range of mood disturbances, including fear, anxiety, and

hopelessness (Johnson et al., 2008). Given that mood disturbances, such as fear, may negatively affect healing, it is important that patients undergo interventions that might minimize mood disturbances and enable healing and positive coping. Johnson and colleagues (2008) conducted a study to assess the impact of animal assisted therapy on perceived feelings of fear for adult hospitalized patient. They used the Profile of Mood States (POMS), a 65-question instrument that uses different adjective phrases or words describing various feelings associated with moods. The patients were randomly assigned to the intervention group or the control group, receiving a visit from the AAT dogs (intervention) or receiving a human visitor (control). Although there were no statistically significant differences between the intervention group and the control group, there was a decrease in fear and anxiety from the group that was visited by the AAT dogs. Positive verbal expressions from patients were documented in the study as well. Multiple patients expressed that the dogs made them feel more relaxed and kept them from being scared for the upcoming procedures. Although this study was conducted with adult patients, it has the potential to be generalized to pediatric patients, since the effects of hospitalization are similar for both age groups.

Kaminski et al. (2002) conducted a study on the impact of AAT on a pediatric patient's mood. The children were read a seven-item mood rating scale and then gave verbal answers about how they were feeling at the moment (ex: happy, sad, scared, worried, lonely, like crying, or like playing.) The questions were read aloud to the children so that reading and comprehension level did not affect the child's ability to participate. The parents or caregivers were also given a four-item mood rating scale that was completed before, during, and after the AAT session. The parent-completed scale

was only four questions to reduce the time the parents had to spend completing the survey. Results indicated that parents or caregivers reported the child's mood to be more positive following AAT than prior to the therapy. The results also showed that children engaging in the therapy session displayed significantly more positive affect than children that were only engaging solely with a child life specialist. Overall, the children and parents viewed AAT as a mood booster and a positive experience.

### **Loneliness**

One of the most documented psychological benefits of animal assisted therapy is companionship. Many researchers suggest that animals can fulfill the need for affiliation and affection (Levinson, 1978; Mugford, 1980). Levinson (1978) reported that a relationship with an animal can feel less threatening than a relationship with a human, and animals can also satisfy a human's need for loyalty, trust, and respect. Animal assisted therapy dogs can help to decrease loneliness and depression by providing companionship, promoting an interesting and varied lifestyle, and providing an impetus for nurturing (Odendaal, 2000).

### **Self Esteem and Confidence**

Children who suffer from low self-esteem or decreased confidence can benefit greatly from positive animal interactions that involve giving the animal instructions to complete certain tasks (Weston, 2010). Pichot (2007) found that a therapy dog may be the first creature that has listened and responded to the child with such positive energy, enthusiasm, and compassion. This can make a child feel important as well as make them feel heard and understood. When the animal allows the child to engage in any type of interaction, the animal gives the child a feeling of being accepted, as if he or she were

friends with the dog (Mallon, 1992). Through an experiment conducted with preschool through fifth grade children relating to a pet's role in children's emotional development, Triebenbacher (1998) reported that her results support the idea that pets offer emotional support, affection, and unconditional love and appear to play an important role in children's emotional well-being. Weston (2010) explains that animals are great icebreakers and may help children that are more shy or withdrawn to open up and initiate conversation. Children often become very animated when talking to or about their pets or interacting with therapy animals. Children with low self-esteem tend to focus more inwardly on themselves, but interaction with an animal can help them focus on what is going on in the world around them (Weston, 2010). AAT may also help a child with low self-esteem or low confidence build rapport quickly with their therapist or doctors when they can see the positive interaction between the animal and the therapist (Nagengast et al., 1997). The child may project their experiences or feelings onto the animal, which can increase communication (Johnson et al., 2008). Weston (2010) also explains that an animal participating in AAT does not care what the child looks like or what they say. The animal offers unconditional love and friendship with no judgment. This type of reciprocal, non-judgmental bond can increase confidence and self-esteem in the child.

### **Interaction and Communication**

AAT may also help a child establish rapport quickly with their therapist or doctors when a child can visually see a positive interaction between the animal and the authority figure (Nagengast et al., 1997). Some children do not want to openly express their emotions, but the child may instead project their experiences or feelings onto the animal (Johnson et al., 2008). This can increase the communication between the doctor

and the child, and give the child a sense of comfort and safety when expressing their feelings (Johnson et al., 2008). Although it may be considered more of an animal assisted activity rather than a therapy intervention, the Delta Society (2007) states that a social visit with a dog can provide mutual topic for discussions, which can increase communication among all in the room. However, if the presence of an animal promotes interaction and / or communication in a child that has previously been withdrawn, then the presence of the animal transitions to AAT by providing a therapeutic intervention. Having a therapy dog present in the room can also decrease the feeling of a sterile environment and create a normalized, home-like feeling, while also lifting the spirits and moods of the members in the room (Delta Society, 2007).

### **Summary**

The positive psychological benefits of animal assisted therapy are immense and utilizing an AAT program in a children's hospital can have a massive impact on the pediatric patients' overall well-being. As the research reveals, AAT can increase a patient's mood, reduce feelings of loneliness and other negative emotions, promote positive self-esteem, help build and increase confidence, and initiate and increase interaction and communication between patients, family members, and the hospital staff. Overall well-being and quality of life of the patients is an important factor to consider in a pediatric hospital and AAT should be utilized as much as possible with this population.

### **Stress and Anxiety: Physiological and Psychological Benefits of AAT**

Stress and anxiety are two responses that could be labeled as physiological or psychological responses due to their characteristics, but are in fact both physiological and psychological in nature. Stress and anxiety can create responses throughout the body as

well as affect one's mental state (Nagengast, 1997). Therefore, they are grouped and talked about together since the psychological aspects cannot be separated from the physiological aspects and vice versa. The effects of stress and anxiety on the well-being of children are extremely important concerns to health care providers. Stress, anxiety, and other physiological responses due to a stressful experience can have an impact on the child's resilience and ability to regain health. Health care providers seek to reduce these symptoms by providing helpful interventions, such as AAT.

Nagengast et al. (1997) examined the presence of AAT dog and physiological arousal symptoms (blood pressure, heart rate, and peripheral skin temperature) as well as behavioral distress during a child's procedure. Baseline data was collected from each child before the procedure and after the procedure. For the intervention group, the AAT dog was brought into the room and positioned on the examination table next to the child. For the control group, the procedure was completed without the dog's presence. The results found that AAT has an impact on a child's physiological symptoms during a procedure. There was a significant decrease in mean arterial blood pressure and systolic blood pressure in the experimental group as compared to the control group. There was a statistically significant decrease in heart rate in the experimental group as compared to the control group as well, but no significant differences in peripheral skin temperature. In regard to behavior, significant differences were found between the experimental and control groups (Nagengast et al., 1997). Other researchers have found that when the results of the intervention group (petting a AAT dog) during a medical procedure were compared to the results of the control group (interacting with a human visitor), there was

a greater decrease in blood pressure and heart rate as well (Baun, Bergstrom, Langston, & Thomas, 1984).

### **Concerns and Limitations of AAT**

Although animal assisted therapy has clear benefits for the patients, there are multiple concerns related to AAT. One of the main concerns of AAT is the possibility that the AAT animals may introduce unwanted pathogens into the hospital environment. In any health care setting it is important to maintain a sterile, clean environment. In the pediatric oncology setting, the importance to keep a clean, sterile environment is heightened because children most likely have suppressed immune systems from chemotherapy treatments. As a result, hospitals may have a difficult time receiving approval for pet therapy programs. The Pediatric Infectious Disease Journal (2002) states that the possible concerns include potential allergic reactions, animal bites or other unwanted pet behaviors, and transmission of infection from the animal to the patients. While this is a major concern, research conducted by Caprilli and Messeri (2006) shows that if hospitals follow all safety and sanitary guidelines that the risks appear to be minimal. Research involving the concerns of animals bringing in pathogens has been conducted by Donowitz (2002), which concluded that a sibling visiting a hospitalized patient presents a greater risk of pathogen exposure for the patient than AAT does. In addition, when many patients return home, they are usually exposed to common household pets on a daily basis. These animals are an unlikely cause of infection, allergy, or injury in even the most immunocompromised patients. The Pediatric Infectious Disease Journal (2002) believes that a multidisciplinary team of pediatricians, infectious

disease and infection control specialists, nursing staff, and veterinarians should establish hospital guidelines to minimize risks and transmission of diseases (Donowitz, 2002).

Despite all of the precautions taken, there are some populations of patients that are “high risk” and should be carefully screened before partaking in AAT. These include patients with pet allergies, immunocompromised patients, patients with open wounds or dermatitis, patients with indwelling medical devices such as catheters, splenectomized patients, and patients that require sterile dressings after surgery (Donowitz, 2002). These patients are not completely unable to engage with the animals, but precautions such as gloves, gowns, and hand washing should take place in order to decrease the chance of exposure to infections. Other concerns of AAT include bites, allergic reactions, and unwanted pet behavior. This relates directly back to the criteria, training, and evaluation of the animal before entering into an animal assisted therapy role. The screening helps to eliminate animals that may be prone to aggression or disobedient behavior. Not every behavior of the animal can be controlled or predicted, but the screening process helps to decrease this number significantly (Pet Partners, 2016). The *Pediatric Infectious Disease Journal* (2002) states that although there are risks involved, the benefits of animal assisted therapy greatly outweigh any risks that could come from the animals participating in therapeutic interventions in the hospital environment.

### **Animal Assisted Therapy and the Pediatric Oncology Population**

Although significant research exists on the benefits of animal assisted therapy in a pediatric setting, research is limited on the benefits of animal assisted therapy specifically for the pediatric oncology population. During childhood and adolescence, a cancer diagnosis can be especially detrimental to normal patterns of emotional, cognitive, and

physical development because it can cause such an immediate and extreme disturbance on everyday life (Urbanski & Lazenby, 2012). A cancer diagnosis can cause challenges in every aspect of life, including socially, physically, and emotionally. A child diagnosed with cancer may have to be hospitalized for multiple days at a time, leading to decreases in time spent with peers, less socialization, increased absences from school, or missing after school hobbies (Urbanski & Lazenby, 2012). All of these factors combined can lead to feelings of isolation, loneliness, and even depression.

Childhood cancer patients may have extreme fears about their changing physical appearances, including weight loss and hair loss, as well as fears about their loss of control and independence (Askin & Moore, 2008; Corey, Haase, Azzouz, & Monahan, 2008). The side effects of cancer treatment can also cause stress for a pediatric patient. Some of these side effects include nausea, pain, fatigue, insomnia, and loss of appetite (Miller, Jacob, & Hockenberry, 2011). Combined, the physical, physiological, and psychological impacts of cancer can influence and alter the child's overall quality of life. Physicians and nurses are knowledgeable about how to treat the physical symptoms, but the psychological symptoms are much harder to treat. Interventions such as AAT have started making their way into more and more children's hospitals in order to help reduce the psychological and physiological side affects of a pediatric cancer diagnosis. In most hospitals, the child life specialists are responsible for coordinating certified AAT dog visits.

Therefore, the purpose of the current study is to understand the child life specialist's perception of animal assisted therapy in a pediatric oncology setting. The researcher will distribute a survey to child life specialists at designated children's

hospitals with questions about their perceptions on the value of animal assisted therapy (AAT) within the pediatric oncology setting. This study proposes three separate questions:

1.) How valuable do child life specialists perceive AAT to be for pediatric oncology patients?

2.) What is the relationship between how much a child life specialist values AAT and his/her perceptions of the use of AAT on physiological responses of pediatric oncology patients during preparation and/or procedures?

3.) What is the relationship between how much a child life specialist values AAT and his/her perceptions of the use of AAT on psychological responses of pediatric oncology patients during preparation and/or procedures?

## **CHAPTER 3: METHODS**

### **Participants**

This study was approved by the Institutional Review Board at East Carolina University, has met ECU requirements and federal exemption criteria for research involving survey procedures. The survey was distributed nationwide via email in order to have a diverse representation of AAT programs used in an oncology setting. Inclusion criteria for the study were as followed: 1) The hospital must have an active animal assisted therapy program, 2) Child life staff members must be active participants in the AAT program, and 3) A pediatric oncology unit is present at the hospital. The first survey was distributed through email on January 26<sup>th</sup>, 2015 and the last was distributed February 28<sup>th</sup>, 2015.

A convenience sample of ten CCLS from hospitals with AAT programs comprised the sample. Due to a slower response rate with the initial ten hospitals contacted, the researcher conducted a search for additional hospitals meeting the specific inclusion criteria. The total number of questionnaires distributed was 23. Of the 23 distributed, 12 were returned for an overall return rate of 52%. All participants were certified child life specialists working with their hospital's AAT program.

### **Measures**

The primary instrument used to assess child life specialists' beliefs about the value of animal assisted therapy within a pediatric oncology setting was a questionnaire constructed by the researcher and distributed through an online survey generator, Qualtrics. An internet survey design was selected because of the convenience it provided in collecting data from a group of working professionals. Participants were able to take

the survey at a time that was most convenient for them, without interrupting their workday. The instrument contained 23 questions divided into four separate sections: 1) demographic questions, 2) general hospital and AAT program demographics, 3) questions about their AAT programs specifically with the pediatric oncology population and 4) open ended questions. The first section of the survey asked basic demographic questions such as gender, age, ethnicity, and level of education as well as questions related to child life certification status, professional membership, years of experience as a child life professional, and job title. The next section of the survey contained questions about the hospital's animal assisted therapy program in general. The third section contained questions about the hospital's AAT program specifically used with the pediatric oncology population. The final section contained three open ended questions about the hospital's AAT program to give participants the chance to express any comments or details they wished to share with the researcher about their specific program.

## **Procedures**

This was an exploratory study with data collected from certified child life specialists through an online survey tool, Qualtrics. The researcher compiled a list of animal assisted therapy programs in children's hospitals across the USA. The programs were located through Google searches using key words such as "animal assisted therapy," "children's hospital," and "pet therapy programs." Only hospitals that met all of the inclusion criteria were selected. Once the hospitals were selected, the child life director from each hospital received an email from the researcher about the purpose of the study, an overview of questionnaire items, and solicitation for participation. If the child life

director expressed interest in completing the survey, another email was sent to the director containing an informed consent form and a link allowing access to the survey. The child life director then distributed the email and survey link to practicing child life professionals to complete the survey.

Prior to completing the online survey, an informed consent was provided indicating there were no perceived harmful effects of participation and that participation was voluntary. Two reminders were sent through email and all communication was conducted electronically. No identifying information was collected from participants and no incentive was provided for completion of the survey. Participants spent an average of six minutes to complete the survey.

### **Data Analysis**

Descriptive statistics provided information about the sample demographics including gender, age, ethnicity, and level of education as well as questions related to child life certification status, professional membership, years of experience as a child life professional, and job title. Descriptive statistics also provided demographic information about the hospital's AAT program including the pets that were used, settings in which AAT takes place, interactions with the patients, and frequency of the use of the AAT animals. Frequencies were used to determine patterns of how beneficial the participants believed AAT is on the physiological and psychological responses of pediatric oncology patients. Thematic analysis was conducted for responses to open-ended questions.

### **Potential Limitations**

This method of recruitment posed a few separate challenges and limitations. The first challenge of this recruitment method was that no AAT database or list of programs

in general exists. This presented challenges for the researcher to randomly select the hospitals. Another challenge is that the researcher conducted research within a very specific population, limiting the ability to randomize the participant selection. Lastly, in order to avoid a conflict of interest, the researcher did not solicit participation from hospitals at which the researcher had applied for potential child life internships.

This study utilized a small sample of all hospitals in the United States offering animal assisted therapy to pediatric oncology populations. While very limited research has been conducted in this area, results have the opportunity to contribute to the empirical literature but must take into consideration the limited sample size.

## CHAPTER 4: RESULTS

The current study was exploratory in nature to determine the child life specialists' perception of the benefits of animal assisted therapy on psychological and physiological responses of pediatric oncology patients. The results are described in six sections: 1) demographic characteristics of participants, 2) general hospital/AAT program characteristics, 3) the child life specialists overall perception of the value of AAT, 4) the benefits of AAT for the physiological responses of pediatric oncology patients, 5) the benefits of AAT for the psychological responses of pediatric oncology patients, and 6) open ended questions.

The results reported are based on the participants that indicated their AAT programs were used for preparation and/or during procedures (n=6). Six respondents stated that due to infectious control policies, AAT animals were not allowed in preparation or procedure rooms thus, there was limited data to measure the physiological and psychological benefits of using AAT before and during a procedure with an oncology population. Due to missing data, correlational analyses were not performed. However, data were analyzed using descriptive statistics and qualitative analysis to explore the relationships between the child life specialist perception of the use of AAT on the physiological and psychological of pediatric oncology patients' responses during preparation and/or procedures. The data were separated into two separate categories, physiological responses and psychological responses. Physiological responses include anxiety, stress, movement, heart rate/blood pressure, movement, and stress. Psychological responses include mood/happiness, loneliness, self-esteem, and interaction/communication.

## **Demographics Characteristics of Participants**

The demographic questionnaire provided information about the participants in this study. The sample consisted of twelve female participants ranging from ages 18-45 years old. The majority of ( $n=11$ ) identified their ethnicity as White, and one participant preferred not to answer. The participants were all certified child life specialists and worked in a variety of settings. The participants were primarily assigned to pediatric units. Table 1 fully describes the range of ages, hospital settings, and primary work units of the study participants.

## **General Hospital/AAT Program Information**

Information from the study participants represented 12 hospitals. The participants reported their hospitals used a variety of different animals for AAT, but dogs were the most commonly used animals. Figure 1 fully describes the variety of animals used for AAT in the hospitals represented in the study. Among the pediatric oncology population, one participant reported never using animal assisted therapy, one reported using AAT two to three times a month, two programs reported using AAT once a week, five programs reported using AAT two to three times a week, and three programs reported using AAT daily. The majority of the programs provided AAT in one on one sessions with the animal and patient (90.9%), 45% of the participants reported using small group sessions of two to five children, and 27% of the participants reported using AAT in large group settings. The setting in which AAT was reported most frequently used was bedside (83.3%). Figure 2 fully describes the settings in which the participants reported AAT taking place.

Table 1.

*Demographic Profile*

Characteristics	Category	Number	Percent
Gender	Female	12	100
Ethnicity	White	11	92.3
	Prefer not to answer	1	7.69
Age groups	18-25 years	4	33.3
	26-35 years	6	41.7
	36-45 years	2	25.0
Certified CCLS	Certified	12	100
Type of Hospital	Children's Hospital	6	50.0
	Children's Hospital in General Hospital	5	41.7
	Pediatric Unit	1	8.3
Assigned Unit	Pediatric Unit	7	58.3
	Hem/Oncology	4	33.3
	Emergency	1	8.3
	Department		

Figure 1.

*Variety of Animals Used in AAT Programs*

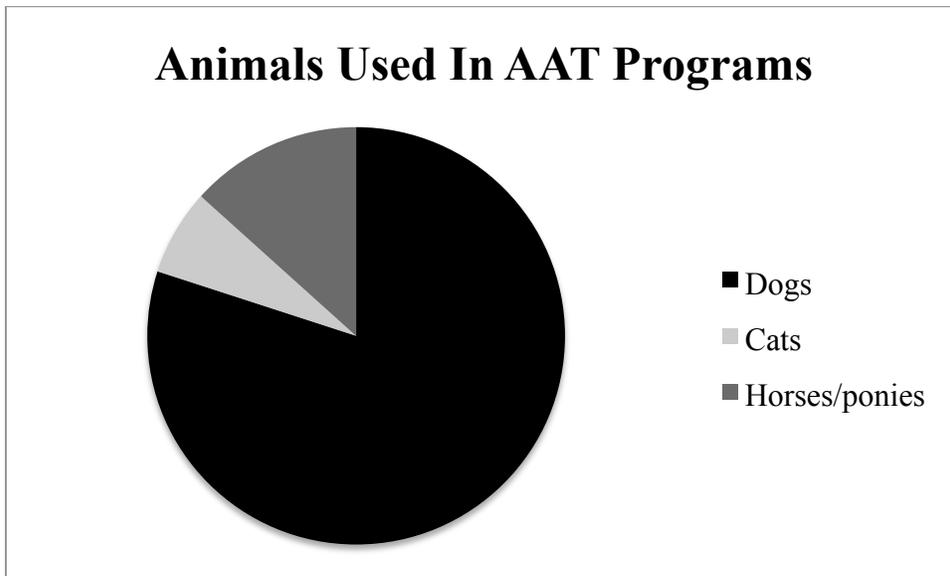
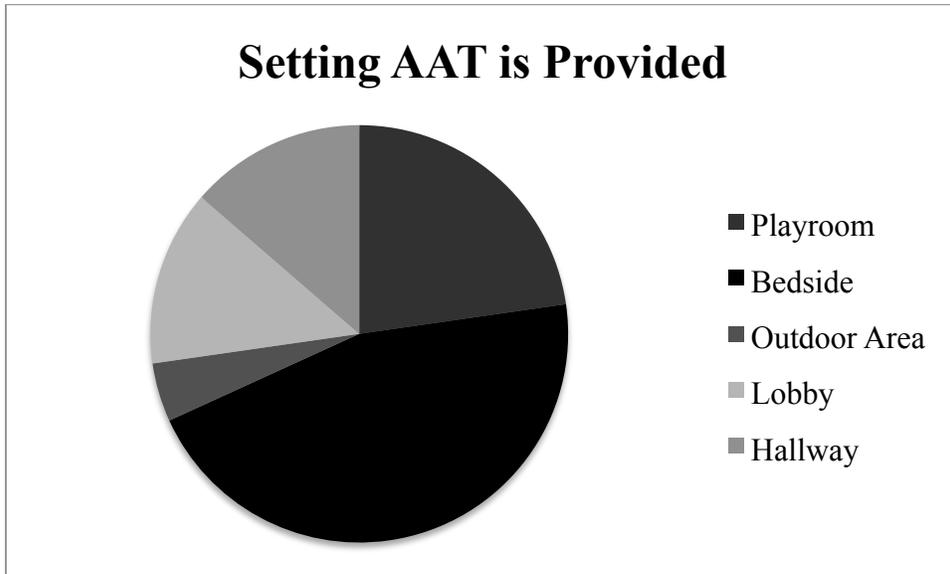


Figure 2.

*Variety of Settings Where AAT is Provided*



All respondents reported that petting/holding the animal is the most common interaction with the animal during AAT. The patient talking to the animals was reported by 90.9% of the respondents. The reasons for denying AAT services varied greatly, all twelve of the hospitals reported the main reason for denying AAT services was allergies to the animals, followed by fear of animals (91.3%), and medical restrictions or medically fragile states (54.5%). The procedure that utilized AAT most frequently was blood draws (50%), followed by port accesses (25%), MRI/CT scans (25%), and chemotherapy infusions (25%), and lastly tumor marker tests (12.5%), and blood transfusions (12.5%).

### **Child Life Specialists' Overall Perception of AAT**

The participants were asked to rate how beneficial they believed AAT is to the pediatric oncology population on a scale from “not beneficial,” “neutral,” and “very beneficial.” Overall, 91.3% ( $n=11$ ) of CCLS perceive animal assisted therapy as very beneficial to pediatric oncology patients, one participant reported feeling neutral about the benefits of AAT for a pediatric oncology population, and none of the participants reported that they believed AAT was not beneficial to this population.

### **Relationship Between CCLSs' Value of AAT and Physiological Responses**

Participants were asked to rate how beneficial they believed AAT is to a variety of different physiological responses in the pediatric oncology population on a scale from “not beneficial,” “neutral,” and “very beneficial.” The sample size varied in these responses due to the limited use of AAT during preparation of procedures or during procedures. Patterns from responses showed that participants perceive AAT to be very beneficial to each of the following physiological response: anxiety, pain, heart rate/blood pressure, movement, and stress.

Five of six (83%) participants reported that AAT was very beneficial to pain control during preparation for a procedure, while one participant out of six reported that they perceived AAT as neutral to pain control during preparation for a procedure. Four of five (80%) participants reported that AAT was very beneficial to pain control during procedures, while one participant of the five indicated feeling neutral to pain control during procedures.

Four of five (80%) participants perceive AAT to be very beneficial to movement during preparation for procedures, while one of the five participants perceived AAT to be neutral to movement during preparation for procedures. All participants perceived AAT as very beneficial to movement and stress during preparation for a procedure. All participants perceived AAT as very beneficial to movement and stress during a procedure.

None of the participants selected “not beneficial” on any of the physiological responses of pediatric oncology patients. Figure 3 illustrates the scope of the participants’ responses regarding the value of AAT on physiological responses during preparation for a procedure. Figure 4 illustrates the scope of the participants’ responses regarding the value of AAT on physiological responses during a procedure.

### **Relationship Between CCLSs’ Value of AAT and Psychological Responses**

Participants were asked to rate how beneficial they believed AAT is to a variety of different psychological responses in the pediatric oncology population on a scale from “not beneficial,” “neutral,” and “very beneficial.” The sample size varied in these

Figure 3.  
*Perception of AAT on Physiological Responses During Preparation for Procedure*

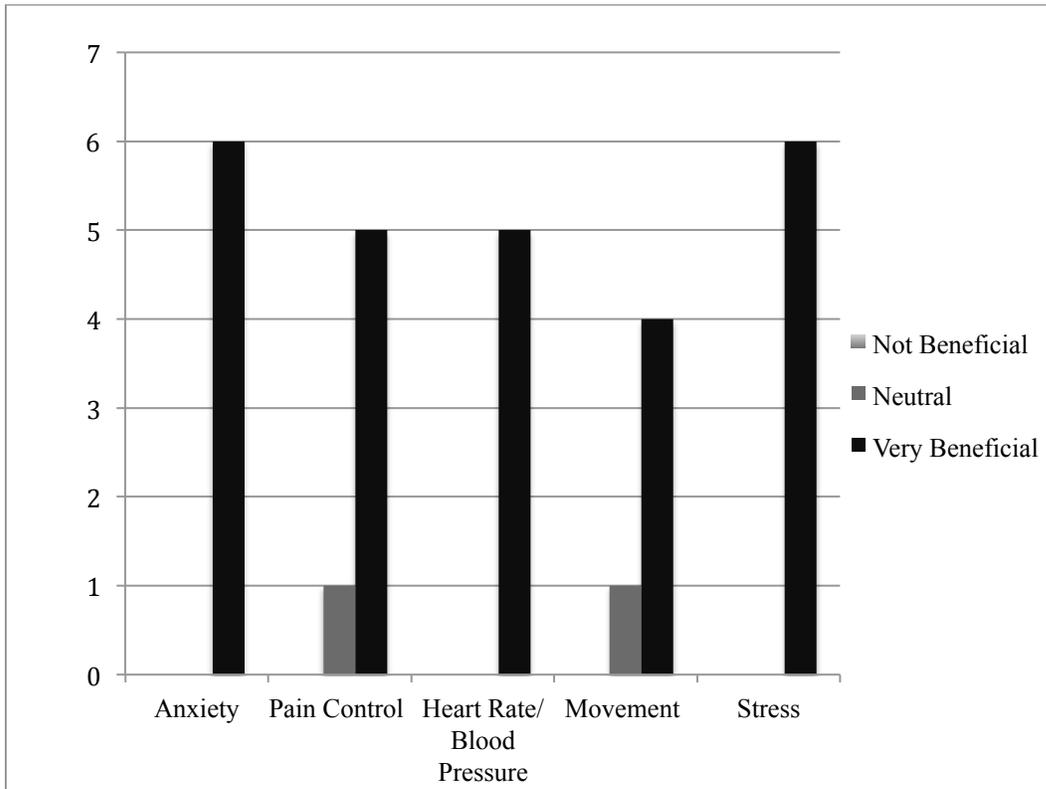
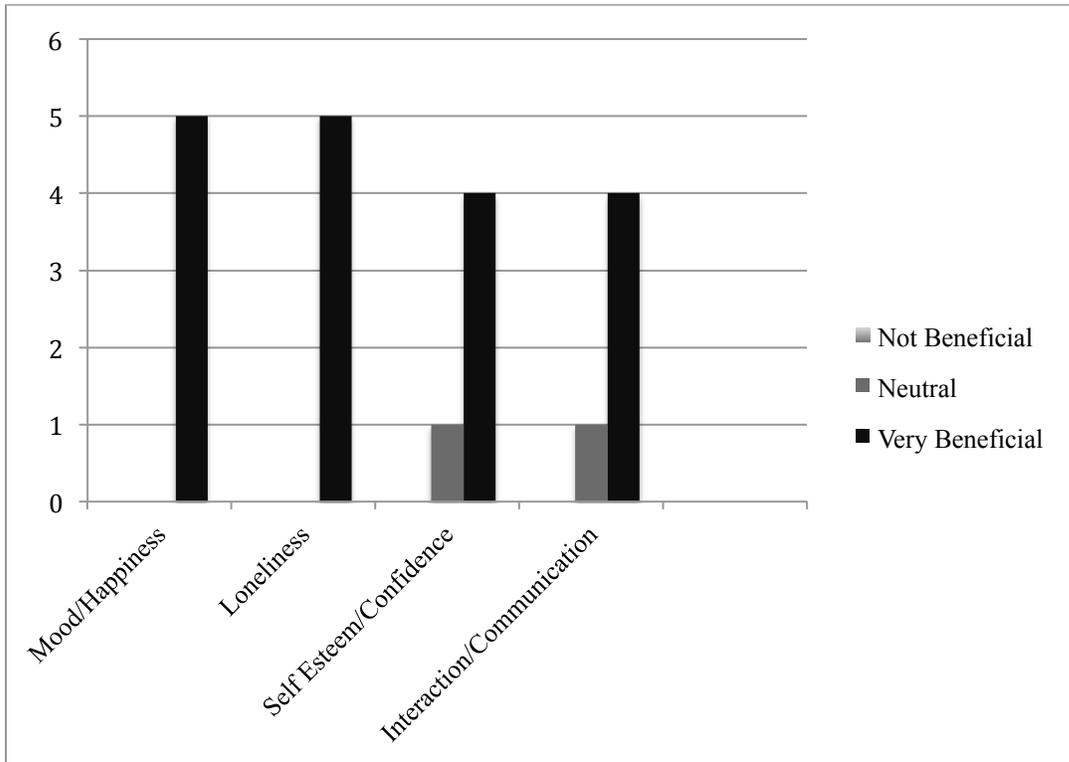


Figure 4.  
*Perception of AAT on Physiological Responses During a Procedure*



responses due to the limited use of AAT during preparation of procedures or during procedures. Patterns from respondents revealed that participants perceive AAT to be very beneficial to each psychological response (mood/happiness, loneliness, self-esteem/confidence, and interaction/communication).

Five of six (83%) participants perceive AAT as very beneficial on mood/happiness during preparation for a procedure while one participant reported feeling neutral towards AAT on mood/happiness during preparation for procedures. Five of five participants perceived AAT to be very beneficial on mood/happiness during a procedure.

Six of six participants indicated they believe that AAT is very beneficial to interaction and communication during preparation for procedures. Four out of five (80%) participants viewed AAT to be very beneficial for interaction/communication during procedures while one participant reported feeling neutral towards AAT and interaction/communication during preparation for a procedure.

None of the participants selected “not beneficial” on any of the psychological responses of pediatric oncology patients. Figure 5 illustrates the scope of the participants’ responses regarding the value of AAT on psychological responses during preparation for a procedure. Figure 6 illustrates the scope of the participants’ responses regarding the value of AAT on psychological responses during a procedure.

### **Narrative Comments on the Value/Importance of AAT**

Originally participants were asked three open-ended questions. Due to a lack in participant responses in the first two questions, the researcher decided to focus thematic analysis on the last open-ended question in which participants were asked to share any thoughts about the value/importance of AAT when working with oncology patients.

Figure 5.  
*Perception of AAT on Psychological Responses During Preparation for a Procedure*

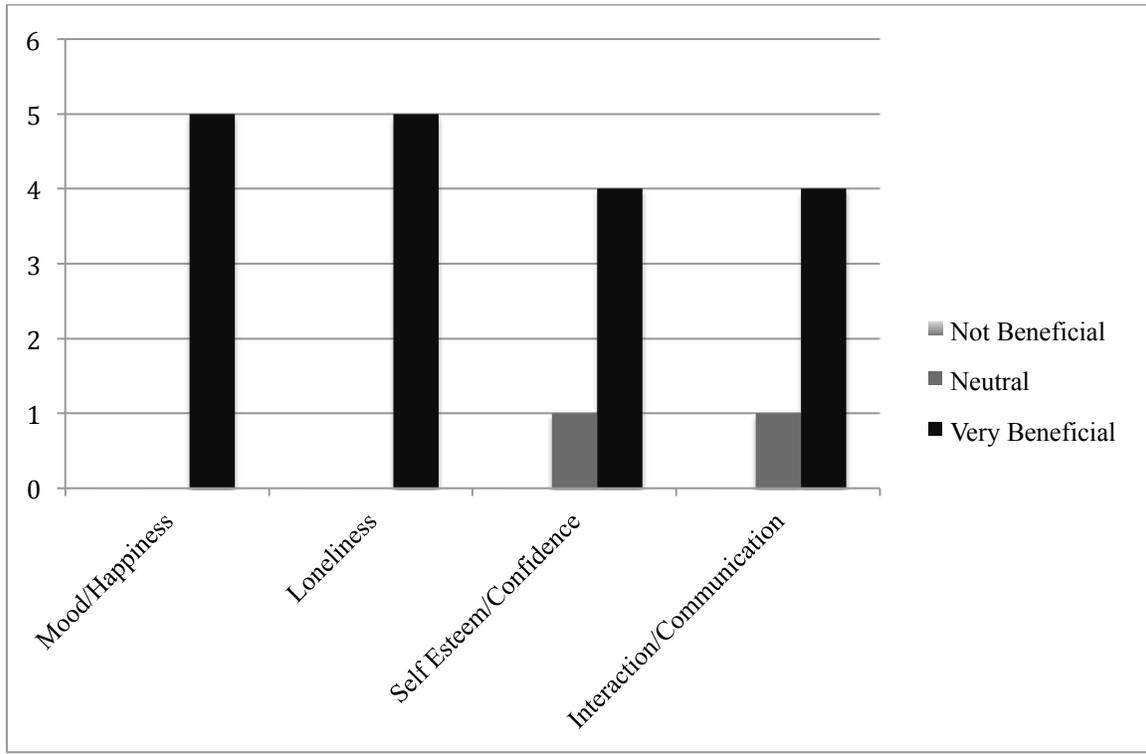
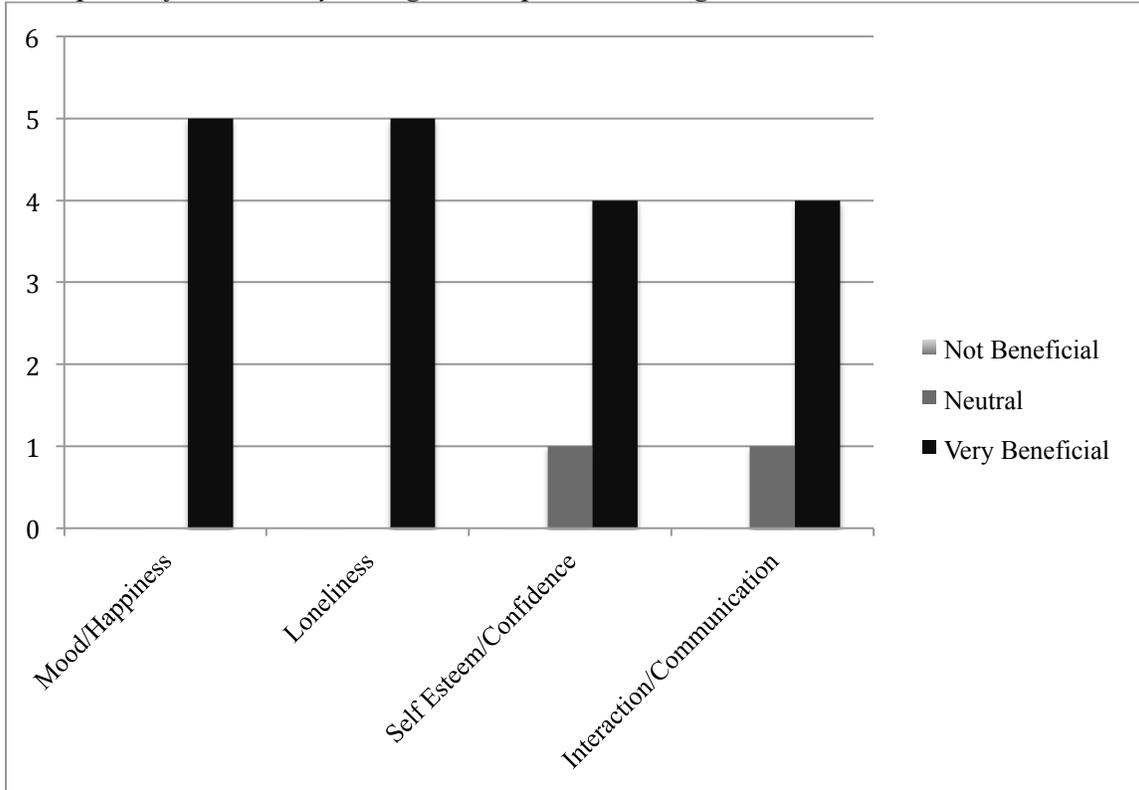


Figure 6.  
*Perception of AAT on Psychological Responses During a Procedure*



This open-ended question was asked at the end of the survey to elicit information the participants wished to share about their AAT program that had not previously been addressed in other survey questions. Seven respondents shared thoughts and a thematic analysis revealed four themes. The four themes that emerged from the open-ended question include: (1) the desire for expansion of the AAT program, (2) restrictions of the AAT program due to medical reasons, (3) challenges the AAT programs may face, and (4) overall satisfaction with the AAT program.

**Expansion.** Two participants specified that they wished they had the ability to expand their programs and wished the animals were allowed to do more with the pediatric oncology patients. One of the participants expressed the desire to expand the ability of the animals and the program, “I wish the animals were able to do more with our patients during painful and stressful moments”, and another voiced, “We would love to expand into other animals, more usage, and variety of techniques”.

**Restrictions/limitations.** Two participants discussed the desire to use AAT more often, but identified limitation by medical restrictions and infectious control policies. One participant narrated, “Unfortunately, due to infection control policies and due to the fact that our hematology oncology unit is considered an immune compromised unit we are not able to have pet therapy with that population.” This remark indicates that the challenges of medical restrictions exist. One participant specified, “We can place referrals for AAT visits for patients that are well enough and have high enough counts (blood cell) to participate in AAT,” demonstrating that the use of AAT can be limited by medical restrictions and infection control policies.

**Challenges.** Another reoccurring theme in the open-ended question was the challenges that the AAT program faces. Responses such as “We have a small and limited oncology population”, “Expanding the program would require more staffing at this time and is a challenge for our current status”, and “I wish we had a true animal assisted therapy program!” highlight the challenges that persist throughout hospitals attempting to implement successful AAT programs.

**Satisfaction.** The final theme that occurred throughout the open-ended responses was overall satisfaction in the program. Three participants conveyed satisfaction with their AAT programs through proclamations such as “We have great experiences with our AAT program and have several dogs come each day to see patients.” Another participant stated, “Our pet therapy dogs see all patients who qualify for the program regardless of their diagnosis.” Another participant expressed satisfaction with their program through exclaiming “We are fortunate to have volunteers who live very close to the hospital and are able to bring the dog during other times,” These three statements signify individual’s satisfaction with their current AAT program in the pediatric oncology setting.

### **Summary of Results**

The results indicate that overall, child life specialists view AAT to be very beneficial to the pediatric oncology setting. The child life specialists that participated in the current study see AAT as beneficial to the physiological and psychological responses of pediatric oncology patients. The participant’s open ended response also indicate that some are very satisfied with their programs, while others believe that their programs have the ability to expand and the animals should be allowed to interact more with the patients.

## CHAPTER 5: DISCUSSION

The journey associated with a pediatric oncology diagnosis is filled with various forms of psychological and physiological distress (Tsai et al, 2010). In order to eliminate some of these distresses, enhance the overall treatment process, and improve recovery time, multidisciplinary teams are devising interventions to help these children cope with the side effects that accompany pediatric oncology. Animal assisted therapy has grown increasingly popular in pediatric hospitals and pediatric settings as an intervention to promote physical, emotional, and mental well-being (Zilcha-Mano, Mikulincer, & Shaver, 2011). Due to the fact that child life specialists are typically in charge of coordinating the AAT programs, the focus of the current study was to explore and seek to understand the child life specialists' perception of the value of animal assisted therapy in a pediatric oncology setting. Twelve hospitals comprise the overall sample size (N=12). Due to limited use of AAT during preparation for procedures and during procedures, only six hospitals were able to answer the questions regarding physiological and psychological benefits of AAT, resulting in a sample size of six hospitals (N=6).

### **Child Life Specialist Overall Perception of the Value of Animal Assisted Therapy**

The immense benefits that AAT provides has been studied and documented by previous researchers for decades. The current study found that 91.3% of CCLS perceive animal assisted therapy as very beneficial to pediatric oncology patients. This finding is consistent with those of Kaminski et al. (2002) who interviewed child life specialist and found that an overwhelming majority of CCLS (90%) view animal assisted therapy as a positive intervention that provides support for hospitalized children. The findings are also consistent with Bibbo (2013) who reported that 20 out of 34 hospital employee

participants expressed that they liked the idea of AAT and 31 participants claimed AAT was beneficial in their hospital setting. Benefits include decreasing anxiety, alleviating distress, reducing stress and pain among cancer patients, increasing social interaction, decreasing loneliness, giving patients a sense of control, and eliminating social isolation (Johnson et al., 2008; Odendaal, 1999; Weston 2010; Tsai et al., 2010). AAT has also been shown to increase self-esteem and confidence, decrease depression, enhance quality of life, decrease cortisol levels, normalize the environment (Nagengast, 1997; Braun et al., 2009; Mugford 1980, Tsai et al., 2010; Kaminski et al., 2002). If these benefits are seen within the general pediatric population, expanding the interventions to the pediatric oncology population could provide a source of relieve, comfort, and coping skills to patients in an at risk population that may need the physiological and psychological interventions the most.

The central focus of the child life specialist profession is to provide education, play, preparation, and overall family support to the patient and family members. Certified child life specialist (CCLSs) focus on promoting optimal development and encouraging coping skills in order to minimize the adverse effects of hospitalization (Child Life Council & Committee on Hospital Care, 2014). The support for AAT in the current study (91.3%) indicates that CCLSs view AAT as an intervention that will allow them to meet the overall psychosocial and developmental needs of their patients. AAT encompasses all of the overall goals that a CCLS attempts to meet with each patient. CCLSs are recognizing that along with their interventions and services, AAT is a complimentary therapeutic intervention that can help normalize the experience for a patient and decrease the negative physiological and psychological responses that hospitalization may cause.

Although the sample size of the current study was small (N=12), the results of this study indicate that 93.1% of CCLSs are supporting the use of AAT because they are directly seeing benefits in their patients. The primary goal of a CCLS is to reduce the impact of stressful or traumatic occurrences in a hospital setting through interventions, play, preparation, and education (Child Life Council, 2007). The psychological and physiological distress experienced by a child in a pediatric hospital experience is already immense, but the distress is intensified with the added diagnosis of cancer. The current study found that 100% of participants reporting on their use of AAT viewed AAT as a very beneficial intervention for the reduction of stress during preparation for a procedure and 100% participants viewed AAT as a very beneficial intervention for the reduction of stress during procedures.

These results indicate that child life specialists see AAT as a crisis management resource that is able to change the perception of the stressful event from a negative perception to a positive outlook with a pediatric oncology diagnosis and subsequent treatment. In addition to the theoretical ABC-X model, AAT is can be seen as B, or a resource that has the potential to alter the patient's perception of the stressful experience. This compliments research by Johnson et al. (2008) that indicates AAT is a mind-body intervention that may facilitate the mind's capacity to affect bodily functions and symptoms. Quite possibly AAT as a crisis management resource would allow the patients in this population to have a more positive outlook of their diagnosis throughout their entire journey.

The overwhelming support for AAT in the current study and in previous research suggests that CCLSs are viewing AAT as an integral intervention technique that can be

used with a population that may experience extreme or negative physiological or psychological responses throughout the entirety of their treatment (Kaminski et al., 2002; Braun et al., 2009; Askin & Moore, 2008). CCLSs view AAT as an intervention that can treat the nonvisible side effects of cancer, such as psychological distress. As a child life specialist, the goal is to enhance the overall hospitalization experience by integrating normalization activities, therapeutic interventions, and play. AAT encompasses all aspects necessary for CCLSs to provide support for a patient during their hospitalization stay and subsequent treatment.

### **Physiological Responses**

100% (N=6) of the child life specialists in this study indicated AAT was very beneficial for reducing pain levels, decreasing heart rate and blood pressure, and increasing movement. This finding is consistent with those addressing a variety of physiological responses such as pain (Odendall, 2000; Braun et al., 2009), heart rate/blood pressure (Tsai et al., 2010), and movement (Tsai et al., 2010; The Delta Society, 2007).

### **Pain**

Pain is a major factor to consider when addressing the potentially detrimental aspects of hospitalization. The current study supports the notion that AAT can be influential and beneficial during painful procedures. The participants in this study were asked to specify the procedures used most frequently with AAT. The procedures that use AAT most frequently include blood draws (50%), port accesses (25%), and chemotherapy treatments (25%). All three of these procedures are considered invasive procedures and can be very painful, especially for children. The results show that AAT is

used most frequently during painful procedures, which supports previous research conducted by Braun et al. (2009) indicating that members of multidisciplinary teams are increasing support for nonpharmaceutical pain interventions such as AAT in order to decrease the dependency of pharmaceutical pain interventions during procedures with children. Pain has the ability to impact the overall well-being of a child and affect how they cope with future procedures and treatments. In order to eliminate traumatic or stressful memories, AAT should be incorporated into treatment rooms as coping mechanisms for children experiencing these painful procedures. If CCLSs understand the benefits of AAT for pain control, they should advocate for the use of AAT whenever possible to improve the experience for the child, which could lead to more positive coping during future procedures.

A child undergoing cancer treatment will most likely endure many painful procedures and examinations. The current study indicated that 83% of participants believe that AAT is very beneficial to pain control during preparation for procedures and 80% believe that AAT is beneficial during the actual procedure. Although the current study reveals child life specialist and other medical team members are seeing the value and benefits of AAT during painful procedures, the results of this study also found that 50% (n=6) of AAT programs did not use AAT in preparation for procedures. Due to infectious control limitations and sterilization requirements (Khan & Farrag, 2009) animals are not always allowed in the treatment or procedure rooms. Some hospitals have regulations that prevent the animals entering procedure rooms because they fear that animals are a source of infection transmission. Research studies have been conducted to show that animals are no more of a risk than siblings or family members entering and

exiting the room. Further research will enable the medical community to fully understand the risks that animals pose to a treatment room in order to increase overall support for allowing animals be used as a coping mechanism during procedures. Another potential rationale for not allowing animals in treatment rooms may be the perceived negative distraction that they could cause. This is why extensive training and understanding the animals level of obedience is very important before they are allowed to enter any patient's rooms.

### **Movement**

A patient that is confined to a hospital bed or attached to multiple IV poles and monitors may experience decreased movement and far less physical exertion. Physical exertion and movement are important to a faster recovery and overall well-being. The current study found that four out of five participants (80%) found AAT beneficial to movement during preparation for procedures and all participants found AAT to be beneficial to movement during the procedures. These results support previous research conducted by Tsai et al. (2010) that suggested the amount of physical exertion exhibited by a patient interacting with an AAT animal was greater than the amount of physical exertion exhibited by other forms of interventions such as human visitors. Tsai et al. (2010) explained that increased physical activity has been linked to faster healing and overall better experiences in the hospital setting. Animals can normalize a hospitalization experience (Delta Society, 2007), and a child might be more physically active and move more without even realizing it. This may be important for children that feel depressed or do not want to be active due to feeling sick. The normal action of playing or interacting with a pet may increase physical exertion without the child feeling like it is forced.

Increased movement may also help the child feel like they have choices or control over the situation, thereby increasing a sense of normalization that is anything but normal.

## **Psychological Responses**

### **Mood**

A positive outlook and a happy mood have the potential to diminish the negative psychological side effects that accompany a hospitalization stay. The current study supports previous literature explaining that AAT has a positive influence on patient's psychological well being in a hospital setting. In this study, the majority of the participants reported that they perceive AAT to be very beneficial on overall mood and happiness of the patients during the preparation for a procedure, and all participants reported that they perceive AAT to be beneficial to overall mood and happiness of the patients during the actual procedure. The results of the current study supported existing research conducted by Urbanski and Lazenby (2012) that found the human-animal interaction could affect different receptors and hormones in the body such as dopamine and endorphins, which can actually increase a patient's mood, coping, and overall quality of life.

Previous research indicates that pediatric oncology patients may experience significant amounts of psychological distress in a hospital setting due to feeling sick, constant pain, isolation, fear, anxiety, lack of independence, decreased self esteem, loss of interaction with peers, feeling hopeless, fear of death, and more (Johnson et al., 2008; Kaminski et al., 2002; Mugford 1980) Negative psychological experiences in a hospital setting has the ability to slow down the healing process and decrease positive coping (Johnson et al., 2008) and a faster healing process and overall coping has been linked to

overall mood and happiness (Kaminski et al., 2002). The finding that all participants in this study perceive AAT to be beneficial on mood during procedures indicates that AAT should be used more frequently before and during procedures in order to promote coping and positive moods in pediatric oncology patients. Utilizing the ABC-X theoretical framework, AAT can be used as a resource that has the potential to change the patient's mood or perception about the stressful situation in order to help them avoid negative psychological responses to treatment or hospitalization, thereby avoiding a potential crisis.

### **Interaction/Communication**

In a stressful hospitalization experience or during a procedure, some children may decrease their overall communication with the medical staff and family members, which could lead to the patient experiencing increased internal stress. The current study found that all participants perceive AAT to be very beneficial to interaction and communication during preparation for procedures, and the majority (80%) perceived AAT to be very beneficial to interaction and communication during procedures. These results support the results found in the longitudinal study conducted by Caprillo and Messeri (2006) in which the half of the parents of the patients noted increased participation in their child's activities on days of AAT interventions before and during procedures. The results of the current study also support research by Nagengast et al. (1997), which found that interaction and communication increased when AAT animals were present in the room alongside the doctors or therapists. Interaction and communication is important to consider when a child is placed in a stressful, painful, or new experience. If a child is able to communicate how they are feeling, the CCLSs will be able to advocate for the patients

needs, thus increasing their overall hospitalization experience. AAT animals can normalize a hospital experience, which can help a child open up about his or her fears or concerns. Understanding what a child is feeling is crucial to improving their experiences in a hospital setting, which in turn can boost confidence and self-esteem.

Interaction and communication with others is very important for forming and maintaining attachment. According to the American Cancer Society (2009) the age group that has the largest rate of children diagnosed with cancer is age 0-4 years old. According to Bowlby (1973), forming attachment is most important in the first few months and years of life. Healthy attachment relationships may be hindered by isolation and/or lengthy hospitalizations. Hospitalization has the potential to be detrimental to attachment, which calls for multidisciplinary team members to do everything possible to enhance, encourage, and support overall attachment among pediatric oncology patients. Research conducted by Melson et al. (1991) concluded that when children are in potentially stressful situations or difficult transitions, attachment to pets might provide a source of support that could alleviate the effects of stress on the child. These findings were directly supported by the current study. When the participants were asked how beneficial they find AAT to be in alleviating stress, all participants reported that they felt AAT was very beneficial to reducing stress before or during a procedure. The support for using an animal to reduce stress before or during a procedure indicates that child life specialists believe that AAT can serve as a complimentary source of comfort and security during very stressful experiences and has the potential to enhance overall attachment during the hospitalization.

Although the results were limited due to the fact that some programs were not able to use AAT during preparation for procedures or during procedures, the available data indicates that the CCLS in programs that are allowed to use AAT during preparation or during procedures see overall benefits on the mood/happiness of patients and increased interaction/communication of patients in pediatric oncology settings.

### **Value/Importance of Animal Assisted Therapy (AAT): Participant Ideas**

In the current study, an open-ended question enabled participants to share any additional information they wanted the researcher to know about their program. A review of participant's narrative comments revealed 4 themes: 1) desire for expansion, 2) restrictions/limitations, 3) challenges, and 4) satisfaction with the program.

#### **Desire for Expansion/Limitations**

Participants expressed that their hospitals had limitations such as inadequate staffing, funding, or training to properly implement an AAT program within a pediatric oncology setting as frequently as they would like to. The overwhelmingly documented benefits that AAT has on physiological and psychological responses from this study and previous research should inspire CCLS to advocate for more use of AAT with the pediatric oncology population. This may require presenting the benefits of AAT with the pediatric oncology population to members of the hospital staff or board members that have the potential to make adjustments to staffing and funding. CCLSs may conduct research into volunteer programs that provide AAT in order to reduce costs and limit the number of staff members required for AAT interventions. The results from the current show that CCLSs are in favor of AAT but may ultimately face limitations from the hospitals themselves.

## **Challenges**

The thematic analysis revealed that a large reason that AAT was not used in these specific populations was the fact that this population faced more restrictions due to medical reasons, which made access to AAT more difficult. The results from this study support the research by Khan and Farrag (2000) that listed the top three challenges for implementing AAT in hospital settings. One of the biggest challenges is the clinical concern; particularly fear of infections in immunocompromised patients (Khann & Farrag, 2000). Unfortunately, the results from the thematic analysis did not support the findings from Donowitz (2002), which found that most hospitals see the benefits of AAT as way greater than the risks that it potentially presents. The current study's inability to support Donowitz (2002) could be due to the likelihood that the pediatric oncology population is more immunocompromised than most other pediatric hospital populations and more medical restrictions are imposed on this group. Although the results did not support the findings from Donowitz (2002), several participants (n=3) expressed that they wished the patients were allowed to interact with the animals regardless of medical status. The statements from these participants potentially reveals that they believe the positive benefits from the use of animal assisted therapy far outweigh the potential negatives and they would like to use it more with the pediatric oncology population. CCLSs may consider advocating for stricter sanitation policies and safer guidelines for the animals and handlers in order to make AAT readily available for any population of pediatric patients without the fear of compromising the patients' health.

## **Satisfaction with the Program**

Participants that were very satisfied with their AAT program (n=3) provided insight as to why they felt satisfied with their programs. One reason for satisfaction with the program was having an abundance of volunteers that live close to the hospital and have the ability to bring animals to the hospital multiple days of the week. These participants also indicated that they allowed their animals to meet with patients regardless of diagnoses and used them as a coping mechanism through tough procedures. It would have been interesting if the participants that reported feeling very satisfied could have provided insight into their protocol and guidelines for the AAT programs. If their guidelines were accessible, other hospitals could model off of these programs in order to successfully integrate AAT programs into other pediatric oncology settings.

Although previous research indicates that this population is at a significantly higher risk for negative physiological and psychological side effects (Johnson et al., 2008) AAT is more difficult to implement within this population. The significant need of immunocompromised population to have access to AAT and utilize human-animal interaction to decrease stress and anxiety, pain, and loneliness, and increase coping, mood and happiness, and overall well-being should be taken into consideration. CCLSs that are not currently using AAT with this population should consider the following recommendations: 1) increased sanitation protocol, 2) choice of hypoallergenic animals, or 3) implementing AAT one on one at bedside. Changes could be made to specific programs to promote the use of AAT in a population that may need it even more than most.

## **Limitations and Future Research**

The results of this study should be considered in light of its limitations. Due to the small sample size (N=12) of the current research study, the results cannot be generalized to the views of the child life community about the benefits of AAT in pediatric oncology settings. Due to limited time and strict inclusion criteria, the survey was only sent to a small number of participants sought out directly by the researcher. Expanding this study to survey all AAT programs used in pediatric oncology settings would result in more generalizable results. Due to strict inclusion criteria requirements and the focus on the specific population of pediatric oncology, the results also cannot be generalized to say that child life specialists believe AAT is beneficial in all pediatric hospital settings or with all diagnoses.

One of the major limitations to this study, that unbeknownst to the researcher, was that most of the programs participating in the study did not use AAT in preparation for procedures or during procedures with oncology patients due to infectious control policies or medical limitations. This in turn limited the ability to correlate how beneficial AAT was believed to be by the CCLS and the impact on the physiological and psychological symptoms that occur during preparation for procedures and during actual procedures with pediatric oncology patients.

Future studies should examine the impact of AAT on each specific psychological and physiological response in order to increase support for using AAT for preparation of procedures and during procedures with a pediatric oncology population. More research should be conducted specifically with the pediatric oncology population in order to fully understand the impact that AAT has on this high-risk population. Future research could

help gain support for the use of AAT as a therapeutic intervention for pediatric oncology patients.

This study did not ask if any of the participants responding were AAT handlers themselves. This could have impacted their perception of AAT due to their experiences with AAT animals on a daily basis. Future studies should explore the partnership of AAT and CCLSs in order to understand how personal experience of being an AAT handler impacts perception.

### **Conclusion and Implications**

The results of this study indicate that child life specialists view animal assisted therapy to be very beneficial to the pediatric oncology population. Results also suggest child life specialists find AAT to be beneficial to some psychological and physiological responses. The findings of this study may have implications on the importance of therapeutic interventions such as AAT for pediatric oncology patients and may increase support for AAT to be utilized within this specific population. Recognizing the benefits of AAT in an oncology setting is important and use of this knowledge could be beneficial to better support pediatric oncology patients through painful, stressful, and anxiety producing procedures. This study is consistent with previous research on the importance and benefits of AAT and adds to the body of knowledge by expanding to a specific, under researched population. More research will be needed to understand the relationship between how much a child life specialists' values AAT and their perception of AAT on physiological and psychological responses of pediatric oncology patients.

The overwhelming and increasing number of 94,600 children diagnosed with cancer each year calls for future research to constantly improve the therapeutic

interventions for patients in order to decrease the negative physiological and psychological responses of a cancer diagnosis and hospitalization. The bond between a human and an animal is one that is untouchable and hard to explain but is even more beneficial to our overall well-being than we might even know. Words from veterinarian Dr. Samuel B. Ross explain the overarching benefits of utilizing animals for therapeutic interventions by expressing, “You just can’t stay sad when you’re cuddling a dog or playing with an fluffy animal. No matter how rotten you may feel, animals are accepting, supportive, and provide unconditional love, even if you believe you are completely undeserving.”

## REFERENCES

- Ainsworth, M. D. S. (1973). The development of infant-mother attachment. In B. Cardwell & H. Ricciuti (Eds.), *Review of child development research* (Vol. 3, pp. 1-94) Chicago: University of Chicago Press.
- Ainsworth, M.D.S. (1991). Attachment and other affectional bonds across the life cycle. *Attachment across the life cycle* (pp.33-51). New York, NY: Routledge.
- Bowlby, J. (1969). Attachment and loss: Vol. 1 Attachment. New York, NY: Basic Books
- Ainsworth, M. D. S. (1991). Attachment and other affectional bonds across the life cycle. In C. M. Parkes, J. Stevenson-Hinde, & P. Marris (Eds), *Attachment across the lifecycle* (pp. 33-51). New York, NY: Routledge.
- Askin, M. A., & Moore, B. D. (2008). Psychosocial support of the pediatric cancer patient: Lessons learned over the past 50 years. *Current Oncology Reports*, 10, 469-476.
- Bandstra, N. F., Skinner, L., LeBlanc, C., Chambers, C. T., Hollon, E. C., Brennan, D., et al. (2008). The role of child life in pediatric pain management: A survey of child life specialists. *The Journal of Pain*, 9(4), 320-329.  
doi:10.1016/j.jpain.2007.11.004
- Bardill, N. and Hutchinson, S. 1997. Animal-assisted therapy with hospitalized adolescents. *Journal of Child and Adolescent Psychiatric Nursing* 10: 17–24.
- Baun, M.M., Bergstrom, N., Langston, N.F., & Thoma, L. (1984). Physiological effects of human/companion animal bonding. *Nursing Research*, 33(3), 126-129.
- Bibbo, J. (2013, July). Staff members' perceptions of an animal-assisted activity. In

- Oncology nursing forum* (Vol. 40, No. 4, pp. E320-E326). Oncology Nursing Society.
- Bouchard, F., Landry, M., Belles-Isles, M., & Gagnon, J. (2004). A magical dream: A pilot project in animal assisted therapy in pediatric oncology. *Canadian Oncology Nursing Journal*, 4, 14-17.
- Bowlby, J. (1958). The nature of the child's tie to his mother. *International Journal of Psychoanalysis*, 39, 350-371.
- Braun, C., Stangler, T., Narveson, J., & Pettingell, S. (2009). Animal-assisted therapy as a pain relief intervention for children. *Complementary Therapies in Clinical Practice*, 15(2), 105-109.
- Brodie, S. J., & Biley, F. C. (1999). An exploration of the potential benefits of pet facilitated therapy. *Journal of clinical nursing*, 8(4), 329-337.
- Caprilli, S., & Messeri, A. (2006) Animal-assisted activity at A. Myers Children Hospital: A pilot study. *Evidence-Based Complementary and Alternative Medicine*, 3, 379-383.
- Corey, A. L., Haase, J. E., Azzouz, F., & Monahan, P. O. (2008). Social support and symptom distress in adolescents/young adults with cancer. *Journal of Pediatric Oncology Nursing*, 25, 275-284.
- Child Life Council & Committee on Hospital Care. (2014). Child life services. *Pediatrics*, 133(5), e1471-e1478. doi: 10.1542/peds.2014-0556
- Delta Society. (2007). *Pet partners team training course manual* (7th ed.). Bellevue, WA: Author.

- Dennis, W. (1951). Cultural and developmental factors in perception.
- Donowitz, L.G. (2002). Pet therapy. *Pediatric Infectious Disease Journal*, 21, 64-66.
- Ebrecht, M., Hextall, J., Kirtley, L. G., Taylor, A., Dyson, M., & Weinman, J. (2004). Perceived stress and cortisol levels predict speed of wound healing in healthy male adults. *Psychoneuroendocrinology*, 29(6), 798-809.
- Friedmann, E., Katcher, A. H., Thomas, S. A., Lynch, J. J. and Messent, P. R. (1983). Social interaction and blood pressure: Influence of animal companions. *Journal of Nervous and Mental Disease* 171: 461–465.
- Friedmann, E. and Tsai, C. C. 2006. The animal–human bond: Health and wellness. In *Handbook on Animal- Assisted Therapy*, 95–117, ed. A. H. Fine. San Diego, CA: Elsevier.
- Geist, T. S. (2011). Conceptual framework for animal assisted therapy. *Child and Adolescent Social Work Journal*, 28(3), 243-256.
- Havener, L., Gentes, L., Thaler, B., Megel, M. E., Baun, M. M., Driscoll, F. A., Beiraghi, S. and Agrawal, S. 2001. The effects of a companion animal on distress in children undergoing dental procedures. *Issues in Comprehensive Pediatric Nursing* 24: 137–152.
- Hill, R. (1958). Generic features of families under stress. *Social Casework*, 39, 139–150.
- Hines, L. M. (2003). Historical perspectives on the human-animal bond. *American Behavioral Scientist*, 47(1), 7-15.
- Ingoldsby, B.B., Smith, S. R., Miller, E. J. (2004) Exploring Family Theories. Los Angeles, CA: Roxbury Pub Co.
- Johnson, R. A., Meadows, R. L., Haubner, J. S., & Sevedge, K. (2008, March). Animal

- assisted activity among patients with cancer: effects on mood, fatigue, self perceived health, and sense of coherence. In *Oncology nursing forum* (Vol. 35, No. 2).
- Kaminski, M., Pellino, T., & Wish, J. (2002). Play and pets: The physical and emotional impact of child-life and pet therapy on hospitalized children. *Children's Health Care, 31*(4), 321-335. doi:10.1207/S15326888CHC3104\_5
- Khan, M. A., & Farrag, N. (2000). Animal-assisted activity and infection control implications in a healthcare setting. *Journal of hospital Infection, 46*(1), 4-11.
- Levinson, B. M. (1975). Forecast for the year 2000. In R. S. Anderson (Ed.), *Pet animals and society* (pp. 155-159). London: Bailliere Tindall.
- Levinson, B. (1978). Pets and personality development. *Psychological Reports, 42*, 1031-1038.
- Mallon, G. P. (1992) Utilization of animals as therapeutic adjuncts with children and youth: A review of the literature. In *Child and Youth Care Forum* (Vol. 21, No. 1, pp. 53-67). Kluwer Academic Publishers-Human Sciences Press.
- McGee, K. (2003). The role of a child life specialist in a pediatric radiology department. *Pediatric radiology, 33*(7), 467-474.
- Melson, G. F., Peet, S., & Sparks, C. (1991). Children's attachment to their pets: Links to socio-emotional development. *Children's Environments Quarterly, 8*(2, Children's Aesthetic Experience of the Environment), 55-65. Retrieved from <http://www.jstor.org/stable/41514782>

- Messent, P., & Horsfield, S. (1985). Pet population and the pet owner bond. In Institute for Interdisciplinary Research on the Human-Pet Relationship (Eds.), *The human pet relationship* (pp. 9-17). Vienna: IEMT.
- Miller, E., Jacob, E., & Hockenberry, M. J. (2011). Nausea, pain, fatigue, and multiple symptoms in hospitalized children with cancer. *Oncology Nursing Forum*, *38*, E382-393.
- Mugford, R. A. (1980). The social significance of pet ownership. In S. A. Corson & E. O. Corson (Eds.), *Ethology and nonverbal communication in mental health* (pp. 112-122). New York: Pergamon.
- Nagengast, S. L., Baun, M. M., Megel, M., & Leibowitz, J. M. (1997). The effects of the presence of a companion animal on physiological arousal and behavioral distress in children during a physical examination. *Journal of Pediatric Nursing*, *12*(6), 323-330.
- Odendaal, J. S. J. (2000). Animal-assisted therapy — magic or medicine? *Journal of Psychosomatic Research*, *49*(4), 275-280.  
doi:[http://dx.doi.org/10.1016/S00223999\(00\)00183-5](http://dx.doi.org/10.1016/S00223999(00)00183-5)
- Pet Partners. (2016). Pet therapy requirements. *Pet Partners*. Retrieved from <https://petpartners.org/volunteer/become-a-handler/program-requirements/>
- Pichot T, Coulter M (2007) *Animal-Assisted Brief Therapy: A Solution Focused Approach*. The Haworth Press, New York: 168
- Russow, L. M. (2002). Ethical implications of the human-animal bond. *International League of Associations for Rheumatology*, *43*(1), 33-37.
- Sobo, E.J., Eng, B., & Kassity-Krich, N. (2006). Canine visitation (pet) therapy: Pilot

- data on decreases in child pain perception. *Journal of Holistic Nursing*, 24(1), 51-57.
- Souter, M. A., & Miller, M. D. (2007). Do animal-assisted activities effectively treat depression? A meta-analysis. *Anthrozoös*, 20(2), 167-180.  
doi:10.2752/175303707X207954
- Standards of Practice for Animal-assisted Activities and Animal-assisted Therapy. 1996. Renton, WA: Delta Society.
- Tannenbaum, J. (1995). *Veterinarian Ethics: Animal Welfare, Client Relations, Competition, and Collegiality* (2<sup>nd</sup> ed.). St. Louis, MO: Mosby.
- Triebenbacher, S. L. (1998). Pets as transitional objects: Their role in children's emotional development. *Psychological Reports*, 82(1), 191-200.
- Tsai, C. C., Friedmann, E., & Thomas, S. A. (2010). The effect of animal-assisted therapy on stress responses in hospitalized children. *Anthrozoös: A Multidisciplinary Journal of the Interactions of People & Animals*, 23(3), 245-258.
- Urbanski, B. L., & Lazenby, M. (2012). Distress among hospitalized pediatric cancer patients modified by pet-therapy intervention to improve quality of life. *Journal of Pediatric Oncology Nursing*, 29(5), 272-282.
- Weston, F. (2010). Using animal assisted therapy with children. *British Journal of School Nursing*, 5(7), 344-347. doi:10.12968/bjsn.2010.5.7.78286
- Zilcha-Mano, S., Mikulincer, M., & Shaver, P. R. (2011). Pet in the therapy room: an attachment perspective on animal-assisted therapy. *Attachment & human development*, 13(6), 541-561.

## **APPENDIX A: SOLICITATION FOR PARTICIPATION EMAIL**

Hello,

My name is Becca Doobrow and I am a second year Child Life masters student at East Carolina University in the department of Human Development and Family Science. I am currently conducting my thesis entitled “The Child Life Specialists’ Perception of Animal Assisted Therapy with a Pediatric Oncology Population.” The purpose of this study is to understand child life specialists’ perceptions of the role of animal assisted therapy in a pediatric oncology setting. I have developed a survey that will help this researcher collect data to better understand this topic. I am reaching out to identify potential participants that would be willing to take the survey, which should take a maximum of 5-10 minutes to complete. The study protocol has been reviewed and approved by the ECU Institutional Review Board. The survey and informed consent form have been provided below if you wish to complete the survey. Your participation in this study would be greatly appreciated and the results will help the research on animal assisted therapy in oncology settings!

Thank you for your time,

Becca Doobrow  
East Carolina University  
Human Development and Family Science - Child Life  
678-773-0365

## APPENDIX B: INFORMED CONSENT

You are being invited to participate in a **research** study titled The Child Life Specialists' Perception of Animal Assisted Therapy in a Pediatric Oncology Population being conducted by Becca Doobrow, a Child Life master's student at East Carolina University in the Human Development and Family Sciences department. The goal is to survey one individual within your child life department. The survey will take approximately ten to fifteen minutes to complete. It is hoped that this information will assist us to better understand how beneficial child life specialists perceive animal assisted therapy to be for a patient's physiological and psychological responses in a pediatric oncology setting. The survey is anonymous, so please do not write your name. Your participation in the research is **voluntary**. You may choose not to answer any or all questions, and you may stop at any time. There is **no penalty for not taking part** in this research study. Please call Becca Doobrow at 678-773-0365 with any research related questions or the Office of Research Integrity & Compliance (ORIC) at 252-744-2914 for questions about your rights as a research participant.

## APPENDIX C: QUESTIONNAIRE

### The Child Life Specialists Perception of Animal Assisted Therapy in a Pediatric Oncology Setting

Q1 What is your gender?

- Male (1)
- Female (2)
- Other (3)
- Prefer not to answer (4)

Q2 What is your age range?

- 18-25 (1)
- 26-35 (2)
- 36-45 (3)
- 46-55 (4)
- 56 years and over (5)
- Prefer not to answer (6)

Q3 Which of the following best describes your ethnic background?

- American Indian (1)
- Asian Indian (2)
- African American (3)
- Hispanic (4)
- Native Haaiin (5)
- White (6)
- Some other race (7)
- Prefer not to answer (8)

Q4 In what type of hospital are you currently employed in?

- Children's hospital (1)
- Children's hospital within a general hospital (2)
- Pediatric unit within a general hospital (3)
- General hospital (4)
- Other. Please specify (5) \_\_\_\_\_

Q5 Are you a certified Child Life Specialist?

- Yes (1)
- No (2)

Q6 In which unit are you primarily assigned?

- Pediatric Unit (1)
- Neonatal Intensive Care Unit (NICU) (2)
- Pediatric Intensive Care Unit (PICU) (3)
- Hematology/Oncology (4)
- Radiology (5)
- Sedation (6)
- Rehabilitation (7)
- Emergency Department (8)
- Other (9)
- Does not apply (10)

Q7 What type of animals assist in your program? Check all that apply.

- Dogs (1)
- Cats (2)
- Rabbits (3)
- Birds (4)
- Horses/Ponies (5)
- Other (6)

Q8 How often does your pediatric oncology unit utilize AAT?

- Never (1)
- Less than Once a Month (2)
- Once a Month (3)
- 2-3 Times a Month (4)
- Once a Week (5)
- 2-3 Times a Week (6)
- Daily (7)

Q9 How do you provide AAT services to the pediatric oncology unit? Check all that apply.

- One on one session (1)
- Small group session (2-5 children) (2)
- Large group session (5 or more children) (3)

Q10 How long does each individual AAT session typically last?

- 5-10 minutes (1)
- 10-15 minutes (2)
- 15-30 minutes (3)
- 30-45 minutes (4)
- 1 hour or longer (5)
- Varies according to individual (6)
- Does not apply (7)

Q11 If applicable, how long does each group AAT session typically last?

- 5-10 minutes (1)
- 10-15 minutes (2)
- 15-30 minutes (3)
- 30-45 minutes (4)
- 1 hour or longer (5)
- Varies according to individual (6)
- Does not apply (7)

Q12 In which setting(s) do you provide AAT for the pediatric oncology patients? Check all that apply.

- Playroom (1)
- Bedside (2)
- Outdoor area (3)
- Lobby (4)
- Other. Please specify (5) \_\_\_\_\_

Q13 How many animals typically come at one time for visitation at your facility/program?

- 1 animal (1)
- 2 animals (2)
- 3 animals (3)
- 4 or more animals (4)

Q14 What activities or interactions occur between the animal and the pediatric oncology patients? Check all that apply.

- Petting or holding the animal (1)
- Grooming the animal (2)
- Talking to the animal (3)
- Playing with the animal (ex: fetch, tug of war with toys) (4)
- Walking the animal (5)
- Availability of animal during procedural support (6)
- Other: please specify (7) \_\_\_\_\_

Q15 In your experience, what are some reasons that pediatric oncology individuals may decline animal visitation? Check all that apply.

- Religious reasons (1)
- Allergies (2)
- Personal beliefs (3)
- Fear of animals (4)
- Medical restrictions (5)
- Other: please specify (6) \_\_\_\_\_
- Prefer not to answer (7)

Q16 During preparation for a procedure, how beneficial do you perceive AAT to be on the following psychological and physiological responses?

	Not Beneficial (1)	Neutral (2)	Beneficial (3)	N/A (4)
Mood/happiness (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Anxiety (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pain control (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Heart rate/blood pressure (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Movement (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Loneliness (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Self-esteem/confidence (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Interaction/communication (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Stress (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q17 During a procedure, how beneficial do you perceive AAT to be on the following psychological and physiological responses

	Not Beneficial (1)	Neutral (2)	Beneficial (3)	N/A (4)
Mood/happiness (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Anxiety (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pain Control (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Heart rate/ blood pressure (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Movement (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Loneliness (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Self-esteem/confidence (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Interaction/communication (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Stress (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q18 During which procedures is AAT most commonly used among pediatric oncology patients? Check all that apply.

- Blood draw (1)
- Port access (2)
- Chemotherapy (3)
- Radiation (4)
- PIC line/Central line placement (5)
- Lumbar puncture (6)
- Bone marrow aspiration/biopsy (7)
- MRI/CT scan (8)
- Bone scan (9)
- Blood transfusion (10)
- Endoscopy (11)
- Ultrasound (12)
- Tumor marker test (13)
- Other: please specify (14) \_\_\_\_\_

Q19 Overall, how beneficial do you believe AAT is to pediatric oncology patients?

- Not beneficial (1)
- Neutral (2)
- Very beneficial (3)

Q20 Are AAT animals involved in medical play? If yes, please list the ways in which they are involved.

Q21 Are AAT animals involved in preparations of the patient? If yes, please list the ways in which they are involved?

Q22 What else would you like to share about your AAT program?

**APPENDIX D: INSTITUTIONAL REVIEW BOARD APPROVAL FORM**

Institutional Review Board Approval Form



**EAST CAROLINA UNIVERSITY**

**University & Medical Center Institutional Review Board Office**

4N-70 Brody Medical Sciences Building · Mail Stop 682

600 Moye Boulevard · Greenville, NC 27834

Office **252-744-2914**  · Fax **252-744-2284**  · [www.ecu.edu/irb](http://www.ecu.edu/irb)

\*\*\*\*\* TITLE CONTENT AFTER THIS \*\*\*\*\*

## Notification of Exempt Certification

From: Social/Behavioral IRB  
To: Rebecca Doobrow  
CC: Sandra Triebenbacher  
Date: 1/25/2016  
Re: UMCIRB 15-002170  
AAT with Pediatric Oncology Patients

I am pleased to inform you that your research submission has been certified as exempt on 1/23/2016 . This study is eligible for Exempt Certification under category # 2 .

It is your responsibility to ensure that this research is conducted in the manner reported in your application and/or protocol, as well as being consistent with the ethical principles of the Belmont Report and your profession.

This research study does not require any additional interaction with the UMCIRB unless there are proposed changes to this study. Any change, prior to implementing that change, must be submitted to the UMCIRB for review and approval. The UMCIRB will determine if the change impacts the eligibility of the research for exempt status. If more substantive review is required, you will be notified within five business days.

The UMCIRB office will hold your exemption application for a period of five years from the date of this letter. If you wish to continue this protocol beyond this period, you will need to submit an Exemption Certification request at least 30 days before the end of the five year period.

The Chairperson (or designee) does not have a potential for conflict of interest on this study.