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Assessing Provider Knowledge and Attitude Towards Animal-Assisted Therapy as a
Complementary Treatment for Children

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University of Kentucky

College of Nursing

Summer 2014

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Dedication

This project is dedicated to my God and my incredibly supportive family. It has truly taken a village for me to complete this program, and I could never thank my husband, parents and mother-in-law for their ceaseless help and encouragement. My mother has been my biggest supporter in reassuring me to pursue a higher education, so thank you for pushing me through this even when I was ready to quit. I also of course would like to dedicate this to my sweet baby who encourages me every day to try and be the best person I can be.

Acknowledgements

I would like to thank my committee chair and program advisor, Dr. Leslie Scott for all of her time and patience and for most importantly keeping me on track. Thank you also to Dr. Mollie Aleshire and Dr. Kathy Sheppard-Jones for being a part of my committee. This also would not have been possible without the help of Susan Westneat, Zim Okoli, and Whitney Kurtz. Finally I would never have survived without the support of my fellow graduating FNP and PNP “girls”. Thank you so much for encouraging me through to the end.

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DNP Capstone Introduction and Overview

Animal-assisted therapy (AAT) initially caught my attention while I was working in the Pediatric Intensive Care Unit several years ago. Witnessing the calming effects of a therapy dog with an agitated, delirious patient was truly fascinating to me. I started volunteering at a therapeutic riding facility not long after. Hearing the stories of families and seeing the relationships between the children and animals gave me a strong belief that animals certainly have a place in complementary (and sometimes primary) treatment. This led me to curiosity about other providers' opinions and attitudes towards this type of practice and eventually to this capstone project. The purpose of this capstone report is to explore the use of AAT as a complementary therapy for children and address potential barriers and facilitators for implementation.

The first manuscript in this capstone is an integrative literature review focusing on the use of animal-assisted therapies in pediatric populations. The review examined articles that referred to the use of animal assisted therapy as a complementary treatment only for pediatric populations in a variety of settings. The review also provides a brief overview of AAT.

The second manuscript reviews a clinical practice guideline published by Cincinnati Children's Hospital in 2011. The guideline addresses the use of equine psychotherapy for high risk adolescents in residential psychiatric treatment.

The final manuscript included in this report is a study completed in 2014 to assess the knowledge and attitude of primary care providers toward the use of AAT with children. A survey was distributed to pediatric primary care providers at an academic facility. The results indicate provider interest and enthusiasm, but several barriers were identified that may prevent implementation. These findings could provide an opportunity to guide future practice.

Manuscript #1

Animal Assisted Therapy in Pediatric Populations: An Integrative Review

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Abstract

Title. An integrative review of animal-assisted therapies and activities in pediatric populations.

Aim. This integrative review aimed to determine the best available evidence regarding the effectiveness of animal-assisted therapies and activities as a complementary therapy for pediatric patients.

Background. Animal-assisted therapy is becoming an increasingly popular complementary therapy for inpatient and outpatient pediatric populations. Literature supports positive results when used with children, and when implanted safely with appropriate children, can be an important component of a holistic care plan.

Design. Integrative review.

Methods. PubMed, Medline, CINAHL and Cochrane Database were searched. Reference lists of included studies were appraised. Articles were selected based on inclusion and exclusion criteria, data were presented in a narrative summary.

Background

Animal assisted therapy (AAT) and Animal assisted activities (AAA) are terms used to describe complementary therapies that utilize an animal accompanied by a trained handler as a tool to enhance a current treatment plan (Pet Partners, 2013). AAA is more commonly seen in hospitals and medical facilities, and is the less structured of the two. AAA can be done repeatedly with different patients and is typically more of a “meet and greet” activity with the animals. Typically, there is not an individualized, measurable outcome that is predetermined prior to AAA (Pet Partners, 2013). A visit to a hospitalized child by a therapy dog is an example of AAA. AAT is more rigorous and is modified for each individual patient with specific goals set prior to treatment. Hippotherapy, a type of therapeutic horseback riding, is an example of AAT (Fine, 2010). For example, a treatment goal for a child with cerebral palsy using hippotherapy may be to see an improvement in balance or motor skills.

The primary aim of this integrative review will be to review, synthesize and evaluate the current literature on animal-assisted therapies or activities in pediatric populations. A secondary aim will be to determine implications for pediatric primary care providers and to synthesize evidence based literature that may be useful in making best practice clinical decisions.

AAT/AAA can prove to be useful tools for primary care providers to address often overlooked components of care for pediatric patients.

Methods

Search strategies included manual electronic searching and reference searching of all literature that met inclusion criteria. Inclusion criteria were determined to be any type of animal-assisted intervention as a complementary therapy involving pediatric patients. The age range included was three-17. Literature reviews with referral to pediatric populations were included.

Exclusion criteria included animal-assisted interventions in adult populations. Studies not published in English and articles greater than 15 years old were excluded as well. Search terms included: animal-assisted therapy, animal-assisted activities, pet therapy, children, pediatrics, complementary therapy. Databases that were searched included PubMed, Medline, and CINAHL.

Findings

A significant amount of literature is available regarding AAT in a variety of populations including children, the elderly, critically ill, and psychologically vulnerable. This review will focus only on AAT as a complementary treatment in pediatric populations.

Equine Therapies

The majority of the literature available pertaining to AAT in an outpatient setting involves the use of horses in the form of hippotherapy, which is defined by the American Hippotherapy Association (2010) as physical, occupational or speech therapies that utilize the movement of the horse for a specific treatment goal. Horses are commonly used in conjunction with physical therapists for patients with cerebral palsy, spinal cord injuries, and/ or movement disorders (American Hippotherapy Association, 2010). For these children, the actual riding is the most beneficial part of the therapy. Hippotherapy is often used as a primary therapy for this type of population, but for the purpose of this review, the focus will remain on AAT as a complementary therapy. Other therapies utilizing the horse include equine facilitated psychotherapy, therapeutic driving and riding, and interactive vaulting (Path, Int., 2014). The horse is a popular choice for outpatient therapy in both pediatric and adult populations. Most of the literature that was available in pediatric populations outside of the hospital involved horses and psychologically vulnerable children and adolescents and children with developmental

disorders. Positive psychological outcomes were demonstrated with all of the outpatient literature reviewed. Though the populations included are varied, one of the common themes that emerged from the literature was in an increase in communication and social interactions.

Bass, Duchovny, and Labre (2009) hypothesized that the reason behind the increase in socialization for children with Autism Spectrum Disorder (ASD) might be due to the multi-faceted aspects of riding or the association with the physical presence of the animal. Another study evaluated teacher ratings of autistic students with and without concurrent therapy involving horses (Ward, Whalon, Rusnak, Wendell, & Paschall, 2013). Teachers noted significant increases in social interactions while the children were participating in a therapeutic riding program. Also noted was a regression during breaks from the program, but re-gained improvements with continuation of the program. This could possibly be attributed to the routines and structures utilized by the program, which are indicated for children with ASD (Ward et al., 2013). Other positive outcomes demonstrated in both studies included improved sensory skills and decreased severity of symptoms such as inattention and distractibility (Ward et al., 2013; Bass, 2009).

Themes of increased communication also emerged from studies of grieving children (Glazer, Clark, & Stein, 2004) and studies of psychologically vulnerable children and adolescents (Schultz, Remick-Barlow, & Robbins, 2007)(Bachi, Terkel, & Teichman, 2012). A qualitative study by Glazer, Clark and Stein (2004) evaluated the effect of hippotherapy in grieving children. Children were encouraged to “talk” with the horses and learn to trust the horses, and several parents noted that their children were more open and willing to speak their concerns or thoughts about deceased family members to the horse. A Children’s Global Assessment of Functioning (GAF) score was used to determine outcomes in one group of

psychologically vulnerable children (Schultz, Remick-Barlow & Robbins, 2007). GAF measures overall social, psychological and cognitive skills in children with a psychological diagnosis. Significant improvements were noted particularly with groups of children that had been exposed to violence. One explanation for this could be the possibility of the horse facilitating communication by allowing the children to become aware of self-limiting behaviors. For example, the horse is more likely to respond to cues from the children when they are not behaving in a manner that is angry or timid (Schultz et al., 2007).

Hospitalized children

One of the most popular choices for AAT within the hospital is the therapy dog (Pet Partners, 2010). Though the sessions with therapy dogs and children in the hospital are typically not as involved as outpatient therapies with horses, positive outcomes have been shown from these interactions as well. Therapy dogs used in the hospital differ from companion animals and are extensively trained to interact with the children in a calming, therapeutic manner (Pet Partners, 2010). Some common themes identified included a promotion of well-being, decreased pain perception, decreased fear, and decreased psychological distress.

Though the physiological benefits reported vary with the studies, there are several common themes that emerged with the psychological benefits. In a group of pediatric oncology patients, AAT was shown to decrease pain, provide distraction, decrease fear, increase socialization, and decrease emotional distress (Urbanski, 2012). Physiological effects such as a positive change in vital signs were also demonstrated. In a separate group of pediatric oncology patients, a focus was placed on the evaluation of the quality of a program involving an intervention with a therapy dog. The most common themes were decreased stress levels and

alleviated psychological distress (Gagnon, Brouchard, Landry, Belles-Isles, Fortier, & Fillon, 2004).

Another qualitative study done in a pediatric cardiology unit suggested that visits by pets were effective in increasing patient morale, normalizing the hospital environment and decreasing stress (Wu, Niedra, Pendergrast, & McCrindle, 2002). Braun, Stanger, Narveson & Pettingrill (2009) conducted a similar study in a multi-population pediatric unit using a similar intervention with therapy dogs. Though no physiological change in vital signs was noted, children reported significantly lower pain scores when visited by a therapy animal (Braun et al., 2009).

Limitations

There is a gap in the research involving children with chronic illness in the outpatient setting; however, this could be due to the suboptimal use of complementary therapies to address their psychological well being. The evidence for the use of AAT for hospitalized children, as well as the use of AAT in the outpatient setting in varying populations is positive. No literature was located that refuted AAT, though there are certain risks that were identified. As with any activity involving animals, there is a risk of being bit, kicked, scratched or stepped on. Though no zoonotic infections have been documented secondary to therapy animals, it can't be excluded as a potential risk. There is also a risk with certain patient populations such as those with respiratory illnesses or allergies to pet dander (Matuszek, 2010).

Also lacking is substantial long-term evidence in both inpatient and outpatient settings. Though many positive outcomes were demonstrated inside and outside of the hospital, most of the studies were limited to a few months or less. The small sample sizes are also a limitation of

the research conducted thus far, as well as inconsistencies with the type of illness and current treatment regimens of the children.

Recommendations for future research would be to include more focused, larger populations of children utilizing more quantitative research strategies. An example would possibly be the psychological evaluation of children with solid tumors receiving outpatient chemotherapy who receive AAT as a complementary therapy. Although the varying developmental stages of the children due to age differences make it difficult to use standardized tools for measurement of symptoms, developing such tools may help us to better understand the impact of AAT on specific age groups, developmental stages, or various chronic diseases.

Discussion

There is a significant amount of literature supporting the role that an animal can play in the treatment of children. Fine (2010) hypothesized that animals are possibly able to offer the child a sense of availability, protection and a means of coping which could potentially explain the increase in communication skills. For example, working with the horses requires children to be actively engaged and participate, and though the populations are varied, the hands-on activities required to build a trusting relationship with the horse could explain the reasons behind the increase in communication in the unique groups of children. Schultz et. al (2007) also noted that the stoic, nonverbal nature of horses may allow children to recognize their own specific behaviors because of their lack of responsiveness to negative behavior.

Though the task of finding and implementing an AAT intervention for children may seem overwhelming for a primary care provider or specialty provider, the most difficult part is likely to be finding a program to suit the particular needs of the patient. Initially, it is imperative to determine if AAT is an appropriate intervention for the child depending on

immune function, current disease state, or other factors such as a fear of animals or environmental allergies. Safety considerations and appropriate animal therapists are crucial. While there are legitimate risks to consider that can be associated with animals, steps can be taken to minimize them and make them highly unlikely to occur.

Animals that are to be used for therapy should also be carefully selected and should be monitored by a trained handler during all contact with children. One of the safest approaches is to use animals that have been therapy certified by an organization such as Pet Partners, which was formerly known as the Delta Society. Pet Partners requires that all of their animals have routine veterinary care, follow strict vaccination guidelines, and must pass a certification trial prior to being used for patient care. Standards of practice are available for review on their website as well as organizations approved for practice in healthcare settings (Pet Partners, 2013). Guidelines have also been released by the American Journal of Infection Control to assist with the safest possible implementation of AAT (Pet Partners, 2013). There is no current evidence showing any association between infection rates and therapy animals; however, proper standard precautions should always be taken such as washing hands before and after contact with animals.

Conclusion

The use of AAT as a complementary part of primary management of pediatric patients is likely to have positive outcomes. It can be used as a unique tool to enhance current plans of care for many children. AAT may not be appropriate for all children; however, it should be considered as an option for children that may benefit. Without any current evidence to refute AAT with children, it is a strategy with evidence-based support that can address the holistic needs of the pediatric population when implemented safely and correctly.

Manuscript #2

Equine Facilitated Learning Program for Children and Adolescents in Residential Psychiatric

Care: A Clinical Practice Guideline Analysis

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Abstract

Purpose: To analyze a 2010 clinical practice guideline regarding the use of an equine facilitated learning program (EFLP) targeted at children and adolescents with mental health diagnosis in residential treatment between the ages of 8-18.

Data Sources: Best evidence statement *Equine facilitated learning for children and adolescents in resident psychiatric care*, literature review articles.

Implications for Practice: EFLP could potentially be used with children and adolescents with mental health diagnoses to promote an increase in self esteem and improve client/parent satisfaction if an appropriate facility and appropriate professionals are utilized for implementation.

Conclusions: Recommendations and practice implications are discussed. Barriers such as cost are discussed that were not included in the guideline. This guideline will need to be revised and updated as more evidence becomes available.

Equine Facilitated Learning Program for Children and Adolescents in Residential Psychiatric Care: A Clinical Practice Guideline Analysis

The clinical practice guideline reviewed for this analysis was a best evidence statement titled Equine facilitated learning for children and adolescents in resident psychiatric care. This guideline was developed by the Cincinnati Children's Hospital Medical Center (CCHMC) and published in April of 2011 (CCHMC, 2011).

Scope and purpose

The target population of the guideline includes children and adolescents with a mental health diagnosis in residential treatment between the ages of 8-18. The overall objective of this guideline was to evaluate if participating in an Equine Facilitated Learning Program (EFLP) increases client self esteem and parent/client self satisfaction versus clients not participating in an equine facilitated learning program (CCHMC, 2011). The use of an equine facilitated learning program is the only intervention to be considered for implementation.

According to the United States Department of Health and Human Services, there are over four million children in our country that suffer from a mental illness severe enough to cause social, school and home dysfunction (US Department of Health and Human Services, 1999). In Kentucky alone, it is estimated that approximately 45,000 children live with serious mental health conditions (US Public Health Service, 2000).

Stakeholder Involvement

This guideline includes intended clinical specialties, intended users, and a target population, all of which could be considered broad key stakeholders. The target population addressed is children and adolescents ages 8-18 with a mental health diagnosis in residential treatment. The clinical specialties intended to be addressed by the guideline are family practice, pediatrics, psychiatry,

and psychology. The intended users addressed are advanced practice nurses, nurses, physician assistants, physicians, and psychologists/non-physician behavioral health clinicians. The major outcomes considered are client self-esteem and client/parent self-esteem (CCHMC, 2011). The development of this guideline was funded by Cincinnati Children's Hospital Medical Center (CCHMC). A guideline committee was not included; however a group that created the guideline included a team leader from the Division of OT/PT/TR. Support personnel included is Mary Ellen Meier, MSN, RN, and CPN (CCHMC, 2011). No key stakeholders were listed in the guideline; however, possible key stakeholders that could be included are: children with mental health diagnoses participating in the program, children with mental health diagnoses not participating in the program, families of the children with mental health diagnoses, health care providers involved with care of the children, therapeutic riding personnel/volunteers involved with the program, and the EFLP at CCHMC. Funding for this program was provided by a donation from an unnamed outside source (CCHMC, 2011). The anonymous donor could be included as a key stakeholder as well.

Rigor of Development

CCHMC (2011) utilized a search of electronic databases to collect evidence for this guideline. The search was limited to articles in English only dated from 2004-2009. Key words used were horse, children, adolescents, mental health, animal assisted therapy, equine, equine therapy, equine facilitated therapy, horse therapy, hippotherapy, self esteem, psychological benefits, and equine assisted counseling. Electronic search databases used were CINAHL, Medline, PubMed, Cochrane Library, and Google Scholar. The literature search identified 29 studies, 9 of the studies were determined to be relevant to the topic and used for creating the guideline recommendation. A review of a published meta-analysis and systematic review were done to

analyze the evidence. Strength of the evidence was graded using a rating scheme (CCHMC, 2011).

The clearly identified, major recommendation is that an EFLP will be conducted with children and adolescents with mental health diagnoses to promote an increase in client's self esteem and improve client/parent satisfaction. According to the Table of Recommendation Strength included in the guideline, the strength of this guideline is "Recommended," which is defined as having a "consensus that benefits are closely balanced with risks and burdens," (CCHMC, 2011).

The evidence appears to be closely linked with the recommendations. There is a variety of evidence included supporting the use of therapeutic riding for children with specific mental health issues including autism, emotional disorders, language and speech delays, and high-risk adolescents and children. The recommendations are specifically targeted at an umbrella diagnosis of mental health, so it would be valuable to include and update more studies on very specific diagnoses as it becomes available. As stated by the researchers, the studies for this field are still in the beginning stages. The research included in the guideline is specific to mental health and links closely with the recommendations; however, it would strengthen the guideline to include research extended to a larger sample size of children with one specific diagnosis. It would be constructive to extend this type of research to children with chronic illness that also are at risk for interrupted psychosocial and emotional well being as well. The majority of the literature included is qualitative, so it would improve the recommendation to update with more quantitative data as it becomes available.

Clarity and Presentation

As previously stated, the key recommendation is clearly identifiable in the guideline summary published by CCHMC(2011) as follows:

“It is recommended that an EFLP be conducted with children and adolescents with mental health diagnoses to promote an increase in client’s self esteem and improve client/parent satisfaction.”

The recommendation of using Equine Facilitated Learning Program is specific about the outcome desired, which is to increase client self esteem and improve client/parent satisfaction.

An addendum is included which also states that measuring outcomes in the areas of self-esteem, social interactions, communication skills, and relationship skills would provide more solid, internal evidence (CCHMC, 2011). The recommendation of actually using the EFLP is slightly ambiguous, but this may be due to lack of a large volume of detailed evidence at this time.

Addressing specific components used in EFLP would make the recommendations more specific. Knowing if certain aspects of EFLP are more beneficial in helping individual clients improve particular skills would help to further define the guideline. For example, group therapy with horses and other children may be more beneficial for a child that is struggling with communication or social skills. Different options for management are not included other than not participating in an EFLP program. It would be noteworthy to examine the benefit of EFLP in comparison to more traditional therapies such as grief counseling or more traditional group therapy.

Application

Potential barriers are not discussed, potential harms are included. Potential harms included with this type of intervention would be including: getting stepped on, getting kicked or being thrown by a horse. The guidelines mention that no studies indicated that these risks outweigh the benefits of this type of therapy (CCMHC, 2011). Consent forms are also required for this type of

therapy that are signed by all participants and/or guardians. A major potential barrier that is not addressed is financing. Though an anonymous donor finances this specific program, the financial aspect of independently implementing this would be a huge barrier for most hospitals without some type of private funding. Finding qualified personnel capable of working with horses and the clients, or finding personnel that could collaborate would be a potential barrier as well. Buy-in from health care professionals is also another potential barrier; there may be a fear of a client becoming injured or possibly a lack of belief that EFLP is a useful complementary therapy. Though a formal cost analysis is not included, an EFLP could be done at minimal cost to the hospital if a facility willing to participate in this type of program was already established. Establishing a facility to be able to do this independently would have a significant cost which would include finding land or a farm, purchasing or leasing horses, purchasing tack, purchase of general items for safety, and care of the animals. There also would be significant costs for upkeep of the facility, animals, and salaries for staff. The most cost effective way to implement this guideline would be to work with an already established riding facility.

Editorial Independence

The source of funding for the guideline was Cincinnati Children's Hospital Medical Center, but no explicit statement is included that states the guideline was not influenced by the organization. No conflict of interest statement is identified; however, the quality of the evidence was reviewed by two independent reviewers (CCHMC, 2011).

Recommendation

There were no other similar guidelines involving animal assisted therapy; however a guideline was located about providing evidence based interventions to support psychodynamic psychotherapy with children (Medicus, 2012). The major difference initially noticed was the

difference in the depth and complexity of the guidelines. In the EFLP guideline, a single somewhat vague guideline is suggested. However in the Psychotherapy guideline, there are multiple recommendations that are very specific and in depth. Just by looking at the two guidelines side by side, it is apparent that there is a larger volume and base of research to pull from for the psychotherapy. Conflicts of interest were also addressed, as well as a qualifying statements and contraindications. It would strengthen the EFLP guidelines to include this as well, particularly contraindications that may lead to a liability issue (i.e. a child with anaphylactic reaction to certain animals). No formal cost analysis was conducted for either intervention. The guideline involving psychodynamic psychotherapy was more in depth because of greater availability of research, however the EFLP guideline still has clinical relevance. The EFLP guideline and research are in a preliminary stage; however, there is no evidence that supports that it does not work or causes harm to the client. For this reason, it is still recommended to follow the EFLP guideline for use as a complementary therapy if an appropriate facility was available.

Manuscript #3

Assessing Primary Care Provider Knowledge and Attitude towards the Use of Animal-Assisted

Therapy for Children

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Abstract

Objective: The purpose of this study was to determine knowledge and attitudes of pediatric primary care providers working in a university outpatient clinic settings towards the use of animal-assisted therapy as a complementary treatment for children.

Methods: A survey tool was administered to the Department of Pediatrics at UK Healthcare.

Results: There were 41 respondents to the survey, 36 of which met inclusion criteria.

Conclusions: The majority of providers were positive towards the use of animal-assisted therapy and responded that they felt it is beneficial for patients. Many respondents were concerned about cost and transportation issues, and responded with an interest for more education.

Introduction

Intermittent acute illnesses are a normal part of childhood for the typical child. However, a smaller portion of the pediatric population suffers from chronic, long-term illnesses. A chronic illness is defined as a health problem that lasts longer than three months, has an impact on normal life activities, and requires frequent hospitalizations and/or extensive medical care. (University of Michigan, 2013). Northram (1997) estimated that approximately 10-15 percent of all children experience a chronic illness in their lifetime, with 10-20 percent of them being at high risk for serious psychological consequences. He also stated that symptoms such as anxiety, depression, fear, and sleep disturbances can manifest in children with chronic conditions as well.

Addressing the psychological needs of pediatric patients can prove to be a daunting and sometimes overlooked component of care for primary care providers . Coping with a chronic illness can be particularly challenging for children because as they learn to manage the psychological/physical aspects of the illness, they are concurrently undergoing the normal process of developmental growth as well. The coping techniques of children are variable depending on their current developmental stage, and a chronic illness can potentially limit their ability to achieve necessary developmental tasks (Northram, 1997; Fine, 2010). Chronically ill children's specialty or primary care providers must utilize strategies to help enable these children to both adjust to their illnesses and achieve their developmental tasks. Though a variety of complementary treatments are available to enhance the primary care plans for these children, AAT can be potentially useful with vulnerable populations such as pediatrics. It is imperative for providers to be able utilize a holistic approach in their care that addresses this vulnerability in their patients.

Specific Aims

The purpose of this capstone is assessing the knowledge of health care providers toward the use of animal-assisted therapies as a complementary treatment for children with chronic or life-threatening conditions.

The specific aims of this study are:

- 1) determine current provider knowledge of AAT/A and provide knowledge of AAT/A programs in general
- 2) evaluate the likeliness of primary care providers to refer to an AAT/A program
- 3) identify barriers that may prevent referral to AAT/A programs.

Methods

This study employed a cross-sectional, descriptive design to assess current provider knowledge of AAT and attitude towards AAT. The study used a survey tool that was sent to a listserv of pediatric clinic providers by email. Data was collected into REDCap (Research Electronic Data Capture), a secure web based program created for research capture. Approval was obtained from the medical center Institutional Review Board at the university where the study was conducted. A letter of support was obtained from the Chair of the Department of Pediatrics to access the listserv for the department. In order to maintain anonymity of the participants, the survey was distributed by the Administrative Support Manager for the Department of Pediatrics and the primary investigator did not have access to the listserv. All responses to the survey were returned anonymously to the primary investigator via the REDCap server. The survey was distributed in an email with a cover letter explaining the purpose of the study. Return of the survey was considered evidence of consent, and participants were asked to agree to electronically consent at the end of the cover letter in order to access the survey. The survey was distributed in

May of 2014 and closed in June of 2014. An initial email and 2 reminder emails were distributed to the entire listserv each time.

Sample

Surveys were distributed via email to all pediatric clinic providers in a local university hospital. Inclusion criteria included pediatric primary care or specialty clinic providers with the ability to fill out the survey in English. Providers were defined as advanced practice nurses, physician's assistants, and physicians. Social workers were included as well due to their high involvement in the referral process for external resources. The survey was distributed to an estimated 150 providers. 41 surveys were returned and 36 of those respondents met inclusion criteria, for an estimated return rate of 27%.

Data Analysis

The data was exported out of the REDCap server into SPSS v21. Basic frequencies and descriptive analyses were conducted. Contingency tables produced to explore awareness of AAT and demographic variables. A Chi-square or Fisher's exact test used to determine statistical significance.

Results

1. Participant Description

A description of the sample is provided in Table 1. Participants were primarily female (75.6%), with a mean age of 46.4 (SD = 14.5) years. The majority of participants were physicians (53.7%) followed by advanced practice nurses (22.0%). The majority of participants had been in their work tenure for 20 years or longer (41.5%). Most participants worked in general pediatrics (46.3%). Most patients came from rural settings (64.1%).

2. Experience with Animal Assisted Therapies

Eighty-five percent (n=34) of respondents had heard of the use of AAT with children, 61.5% (n=24) were aware of AAT programs in Kentucky, and 47.5% (n=19) had patients that had used AAT as a complementary therapy. Table 2 presents a list of AAT programs of which respondents were aware.

3. Provider Perceptions of the Benefits of AAT with Children with Chronic Illnesses

The majority of respondents strongly agreed or agreed that the use of animals as complementary treatment can improve psychological outcomes (97.6%) and physiological outcomes (87.8%). In addition all of the respondents strongly agreed or agreed that many types of complementary treatments are useful for improving psychological outcomes, and most (87.5%) believe that many types of complementary treatment are useful for improving physiological outcomes. However 78% of respondents felt that AAT programs would be beneficial or extremely beneficial for children with chronic illnesses.

4. Comfort with Referring Patients to AAT programs

The majority of providers were comfortable or completely comfortable (70%) with referring patients to a program that uses AAT (See figure 1). Table 3 provides diagnoses for which providers are most likely and least likely to refer patients to AAT programs. The top two factors that would prevent providers from referring patients to AAT programs were cost (70.3%) and transportation (39.0%)(See figure 2). However, 88% of participants were interested in learning more about animal assisted therapy for children.

Discussion

The purpose of this study was to assess the knowledge and attitudes of health care providers toward the use of animal-assisted therapy as a complementary treatment for children with chronic or life-threatening illnesses. The responses to the survey were overwhelmingly

positive, with 90% of providers showing an interest in learning more about AAT and how to refer. Slightly more than half of the providers were aware of AAT programs in Kentucky, which indicates a potential need to educate on appropriate programs and how providers may be able to utilize them for their patients.

Providers felt comfortable referring a wide variety of diagnoses for AAT with the exception of patients with potential respiratory or immune compromise. Though some providers reported concerns for infection risk or injury from an animal, the prevalent barrier expressed was cost and transportation. Previous literature indicated that the primary concerns of providers were the risk of infection, potential for injuries such as bites, and allergic reactions (Brodie, Briley & Shewring, 2002). Though providers in this sample did express safety concerns, the most highly indicated concern was cost. This finding may suggest that AAT has become more accepted as a complementary treatment but providers simply may be lacking the resources to implement. One respondent desired “an equitable way to make it possible for kids [to access AAT services] across all geographies and economics,” and another voiced a concern of cost by stating, “about half of our patients have Medicaid Managed Care.” Transportation issues could possibly be attributed to providers reporting approximately 62 percent of their patients residing in urban areas.

A theme also seemed to emerge about providers not having any specific diagnostic preference for referral. One respondent expressed they would refer “Any and all diagnoses....it is great for people of all ages in the healing process even if you are not terminal...animals are a wonderful tool to help be a distraction from pain and sadness.” Several replies also indicated that there were very few types of patients they would not feel comfortable using AAT with, provided that the patient conveyed interest. Justifiably so, there were reservations from some replies about

referring asthmatics, immunocompromised patients, and violent or overly aggressive patients.

Though no literature is available about primary care provider opinion toward AAT, the responses were consistent with recent literature indicating that medical staff within the hospital largely has a positive perception of AAT (Bibbo, 2013.)

Limitations

There are several limitations to this study. The results are primarily descriptive therefore the opinions of the respondents could always change. No data was collected about ethnicity making it not possible to assess for racial/cultural differences. Also, the small sample size was only from one clinic which means the findings are not generalizable beyond the clinic. There also was a lack of response from some specialty services that have populations likely to use AAT such as pediatric neurology and the developmental clinics.

Conclusion

This study indicated that the majority of the respondents showed an interest and enthusiasm for the use of AAT with children. Providers also expressed a desire to learn more about AAT and how to feasibly implement it into practice. The results indicated that providers could benefit from some type of educational reference on the different types of AAT, what is available locally, appropriate referrals, and options to address the cost. A focus also needs to be placed on barrier reduction. The primary concerns of the respondents were cost and transportation. This study revealed that primary providers were very interested in utilizing AAT for complementary therapy for both psychological and physiological benefit, but are just lacking in the knowledge and resources needed for appropriate implementation.

Table 1. Participant Demographics

	N	%
Gender		
Female	26	72.2
Male	10	27.8
Age of participant (years)		
26-40	14	38.8
41-60	14	38.8
61 and older	8	22.2
Profession		
Advanced Practice Nurse	9	25.0
Physician's Assistant	2	5.5
Physician	22	61.1
Social Worker	3	8.3
Work experience in pediatrics		
Less than 1 year	2	5.6
1-5 years	4	11.1
6-10 years	8	22.2
11-20 years	5	13.9
Over 20 years	17	47.2
Area of Practice		
Endocrinology	2	5.5
Hematology/Oncology	3	8.3
Child Psychiatry	1	2.8
GI	1	2.8
Pulmonary	1	2.8
Pediatric surgery/Orthopedics/Neurology/Urology	0	0
General Pediatrics	13	36.1
Critical Care	3	8.3
Cardiology	5	13.9
Genetics and Metabolism	3	8.3
Neonatology	3	8.3
Patient Setting		
Urban	13	38.2
Rural	21	61.7

*General Peds includes individuals from Adolescent Medicine

Table 2. Most and least likely diagnoses to refer as listed by providers

Most likely to refer	Least likely to refer
Autism	Asthma
Developmental delay	CF
Seizures	Infectious diseases
Downs Syndrome	Immunocompromised
PKU	Cardiac Diseases
Anxiety	Severe MR
Depression	Violent behaving patients
Diabetes	
Asthma	
CF	
Cancer	
ADHD	
OCD	
Sensory Integration Disorder	
Asperger's Syndrome	
PTSD	
Blindness	
Deafness	
Cerebral Palsy	
Anxiety related GI complaints (for example functional dyspepsia, functional abdominal pain, school avoidance, rumination syndrome)	
Morbid Obesity	
Orthopedic Issues	
Pain	

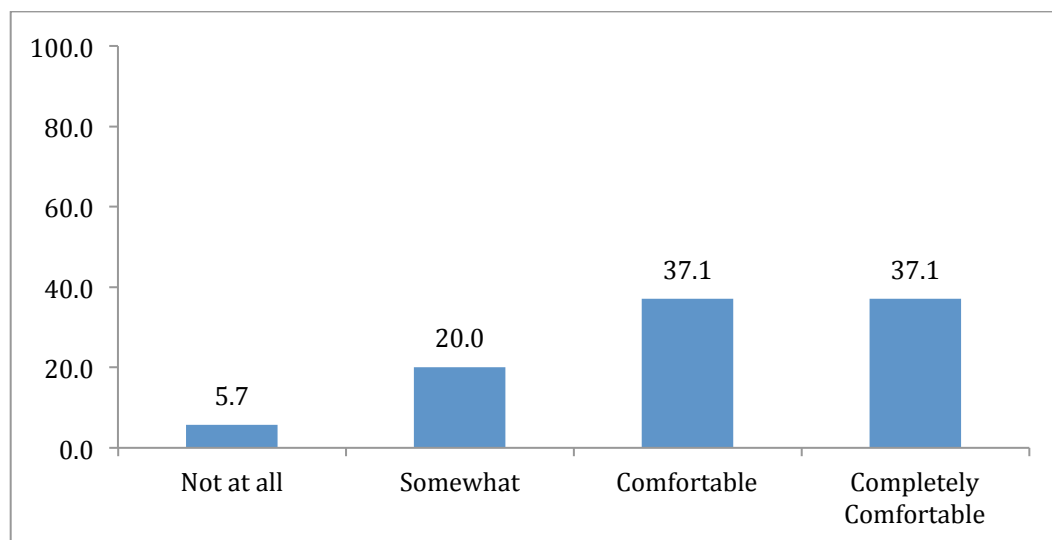


Figure 1. Provider Comfort with Referring Patients to AAT programs

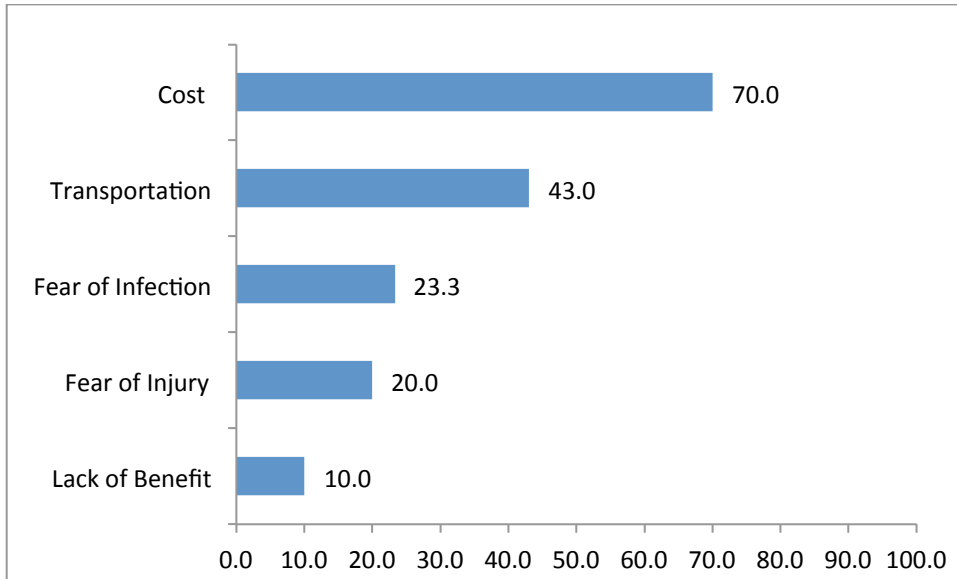


Figure 2. Barriers to Provider Referral to AAT programs

Capstone Report Conclusion

In conclusion, I would like to again emphasize the importance of addressing a holistic care plan with the pediatric population. AAT can be a unique strategy to address the unique needs of a child with a chronic condition. Though more literature is needed to determine long term and physiological outcomes, the literature that was reviewed in Manuscript one demonstrated positive psychological outcomes. Manuscript three evaluated provider knowledge and attitude towards AAT. As previously stated, the majority of providers were enthusiastic about learning more and my plans for the future include assembling an educational reference in a follow up email that includes local resources. Administering the survey to hospital-based providers as well could prove to be beneficial as well since there is variation between AAT that is used inside and outside of the hospital. These results indicated a desire for more education and will provide a foundation for future use of AAT.

Appendix A:

1. Survey Cover Letter
2. Survey Tool

1. Survey Cover Letter

To xxxxx:



I am currently a graduate student at UK pursuing my Doctorate of Nursing Practice in pediatric primary care. I am conducting a study to evaluate provider knowledge of animal-assisted therapy (AAT) as a complementary treatment for children with chronic illnesses. AAT is a term used to describe complementary therapies that utilize an animal accompanied by a trained handler as a tool to enhance a current treatment plan. Common examples include therapy dogs visiting hospitalized children or therapeutic horseback riding. The specific aims of my research will be to determine provider knowledge, likeliness to refer to an AAT program, and identify any barriers that may prevent referral.

Although you will not get personal benefit from taking part in this research study, your responses will help us to understand more about provider knowledge of AAT. Your expertise as a pediatric care provider will provide information essential to understanding the role of AAT in practice. We hope to receive completed questionnaires from about 100 people, so your answers are very important to me. Of course, you have a choice about whether to complete the survey, but if you do participate, you are free to skip any questions or discontinue at any time. The survey will take less than 10 minutes to complete. There are no known risks to participating in this study. Your response to the survey is anonymous which means no names will appear or be used on research documents or in presentation or publications.

Please be aware, while we make every effort to safeguard your data once received on our servers via REDCap, given the nature of online surveys, as with anything involving the internet, we can never guarantee the confidentiality of the data while still en route to us.

If you have any questions about the study, feel free to ask; my contact information is given below. If you have complaints, suggestions or questions about your rights as a research volunteer contact the staff in the University of Kentucky Office of Research Integrity at 859-257-9428.

I know that your time is valuable so your participation is most appreciated!

Sincerely,
Shannon Million

2. Survey Tool

Animal Assisted Therapy Survey



1. What is your profession? Circle one.

- | | | |
|----------------------------|------------------|--------------------------|
| 1. Advanced practice nurse | 3. Physician | 5. Other (specify) _____ |
| 2. Physician's Assistant | 4. Social worker | |

2. Are you: 1. Male 2. Female

3. What is your age? _____

4. How many years have you worked in pediatrics? *Circle one.*

- | | | |
|---------------------|----------------|------------------|
| 1. Less than 1 year | 3. 6-10 years | 5. Over 20 years |
| 2. 1-5 years | 4. 11-20 years | |

5. What is your area of practice? *Circle one.*

- | | | |
|------------------------|----------------------|---------------------------|
| 1. Endocrine | 6. GI | 11. Neurology |
| 2. Hematology/Oncology | 7. Pulmonary | 12. General Pediatrics |
| 3. Primary Care | 8. Pediatric Surgery | 13. Emergency Medicine |
| 4. Urology | 9. Orthopedics | 14. Other (specify) _____ |
| 5. Nephrology | 10. Cardiology | |

6. Do most of your patients live in a rural or urban setting? Your best guess is fine.

- | | |
|----------|----------|
| 1. Rural | 2. Urban |
|----------|----------|

12. How strongly do you agree or disagree with the following statements? Circle one number for each item.

For children with chronic illnesses:	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
a. Using animals as complementary treatment can improve psychological outcomes	1	2	3	4	5
b. Using animals as complementary treatment can improve physiological outcomes	1	2	3	4	5
c. Many types of complementary treatment are useful for improving psychological outcomes	1	2	3	4	5
d. Many types of complementary treatment are useful for improving physiological outcomes	1	2	3	4	5

13. How comfortable would you feel referring your patients to a program that uses Animal-Assisted Therapy?

- | | |
|---------------------------|---------------------------|
| 1. Not at all comfortable | 3. Comfortable |
| 2. Somewhat comfortable | 4. Completely comfortable |

14. For what diagnoses would be MOST likely to refer to Animal-Assisted Therapy?

15. For what diagnoses would be LEAST likely to refer to Animal-Assisted Therapy?

16. How beneficial do you feel an outpatient program that uses Animal-Assisted Therapy would be for children with chronic illnesses? *Circle one.*

- | | |
|--------------------------|-------------------------|
| 1. Not at all beneficial | 3. Beneficial |
| 2. Somewhat beneficial | 4. Extremely beneficial |

17. Which of the following factors, if any, would prevent you from referring to this type of program? *Circle all that apply.*

- | | | |
|-----------------------------|----------------------------------|----------------|
| a. Fear of infection | d. Cost | g. No concerns |
| b. Fear of injury by animal | e. Transportation | |
| c. Lack of benefit | f. Other concern (specify) _____ | |

18. Would you be interested in learning more about Animal-Assisted Therapy? 1. Yes 2. No

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