THE EFFICACY OF EQUINE-ASSISTED ACTIVITIES ON SOCIAL OUTCOMES OF INDIVIDUALS WITH AUTISM SPECTRUM DISORDER: A QUALITATIVE CASE STUDY

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By

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Abstract

Individuals with autism spectrum disorder (ASD) have shown improvement through the use of various therapeutic approaches. Identifying these approaches that engage individuals with ASD is essential in facilitating opportunities for lessening the impact of symptoms. A recent CDC report indicates the prevalence to be 1 in 54 children are diagnosed with autism spectrum disorder (Roth, 2020). While the prevalence continues to escalate, the epidemiology has yet to be discovered. While there is no cure for autism spectrum disorder (ASD), there are forms of therapy that have been proven to be successful in lessening the associated symptomatic behaviors. The most distinct classifiers related to ASD include sensory impairments, communication and speech delays, and restrictive, yet repetitive patterns of behavior or interests. This study intends to examine the parental viewpoint on correlations existing between equine-assisted therapies (EAT) and communication skill improvements of adolescents with autism. Equine-assisted therapies have been found to be successful in the improvement of modality, communication deficits, and behavioral needs of individuals with disabilities. The parental viewpoint and input of such therapies has not been as stringently studied.

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Dedication

This dissertation is dedicated to my beautifully kind daughter, Grace Elizabeth, and my strong resilient son, Grant Ryan, may you always know you can move mountains. Keep your head high when the valleys are low and always look for the best adventures in life. May all of your dreams be pursued and your life lived to the fullest. You can and will make an impact in this world with whatever you decide to become. I am beyond grateful that God chose me to be your mother. I love you both sideways eight.

CHAPTER 1

Introduction

This chapter presents an introduction to equine-assisted therapy that will be discussed in depth in this study. This introductory chapter stages the problem to be researched as well as clearly establishes the purpose of the study. Extant research will be examined to determine if key concepts and theoretical frameworks exist. The last section of this chapter reports on the significance this study may have in the field of special education, delimitations, and lastly, the definition of terms. This study has significant meaning to the field of special education and will lend itself to future research in the practice of non-traditional therapies.

This study is intended to examine the use of equine-assisted therapies with individuals with Autism Spectrum Disorder (ASD), which will increase exposure to alternative treatments that may have previously been overlooked. Autism is the fastest growing developmental disorder in the United States, leaving more children to be diagnosed this year than with AIDS, diabetes and cancer combined (Autism Spectrum Disorder Foundation, 2021). The most recent CDC biennial update, released March 2020, determined that autism's estimated prevalence among the nation's children rose to 1 in 54 children being diagnosed with autism by age 8 in 2016 (Autism Speaks, 2020). This was a nearly ten percent increase from the previous report. According to the National Institute of Neurological Disorders and Stroke (2020), therapies and behavioral interventions are designed to remedy specific symptoms and can substantially improve those symptoms related to an autism diagnosis. Additional research in these therapies will further supplement the field, lending to a narrower view of equine-assisted therapeutic outcomes.

Problem Statement

This study aims to investigate the relationship between equine-assisted therapy (EAT) and Autism Spectrum Disorder (ASD). Equine-assisted therapy can be defined as the use of a horse, or member of the equine family, to promote positive change in human mental and physical health. As Trzmiel et al. (2019) note, modern medicine, with its continuous progress and breakthroughs, allows for the development of targeted therapies aiming at patho-mechanisms of various diseases, often based on the identification of individual therapeutic targets. Autism Spectrum Disorder is most recently defined as a developmental disability that can cause significant social, communication, and behavioral challenges (CDC, 2020). There is a lack of proven research endorsing one form of therapy for the Disorder over the next, and although this study does not aim to narrow down specific therapies, it does intend to determine the potential benefits of equine-assisted therapies for individuals with ASD. Specific social outcomes are the main goal of the research to indicate the need for additional opportunities for these types of therapies versus the traditional office setting. Through this study, outcomes of specific research involving social outcomes will be addressed in Chapters 4 and 5 as indicators of beneficial findings.

The use of animals as a form of therapy dates back to the 18th century; however, the study of such treatment only began in more modern times. It was not until the 1960's that animal use in the therapeutic process began to be formally studied (Benda, 2005). The need for such research is a fundamental need, especially since studies thus far have proven beneficial. There is a plethora of research in the area of Animal Assisted Therapies (AAT); however, specific research linked to EAT is broad and inadequate. Despite much anecdotal support for the benefits of EAT, there remains limited research in the field due, in part, to its being a relatively recent

addition to the therapeutic domain, and also because of the financial, political and practical limitations inherent in research into alternative therapeutic approaches (Bergin & Garfield, 1994; Daniel-McKeigue, 2006; Selby & Smith-Osborne, 2013).

EAT is becoming a more well-known treatment, and acknowledgment of such programming is becoming more widespread. Nevertheless, since there are no clear standards, guidelines, or methodological approaches to providing such therapies, many different programming options are being utilized, leaving research gaps. Due to the large number of approaches, the lack of one known system, and various titles for EAT framework, the application of such interventions take on practitioners' own theories and viewpoints more often. Not having a clear theoretical framework or theme leaves some to question the authenticity of equine-assisted psychotherapy as a legitimate field of practice (Dawson, 2014). Research has also been conducted with various categories of participants, which will be discussed in depth in chapter two; although, there is not an abundance of work solely scrutinizing uses with individuals with ASD.

Organizational Context

The organizational context of research in equine-assisted therapy includes the determination that there is shown benefit, however the niche has yet to be found. There are randomized controlled trials, however there is not one method that has been proven in the literature. The main assumptions are pulled from the research involving animal therapies both present, and dating back over fifty years. For centuries, people have interacted with animals to promote health and well-being (Jorgenson, 1997), helping to manage life experiences through laying such foundations. Most recently, additional studies have concluded that equine-assisted therapies have benefits for various groups. In a meta-analysis conducted to examine the

effectiveness of equine-assisted therapy with children and adolescents who are severely emotionally disturbed (SED) and/or autistic (ASD); Graves (2010) found that EAT had overall moderate to large effect of behavioral, emotional, and functional domains with SED/ASD children and adolescents. Likewise, McConnell (2010) examined the benefits of equine programming with individuals with a history of animal abuse, are suicidal, have been violent. In McConnell's results, it was found that 97% of the participants (n=157) reported that EAT was very beneficial, while 2% (n=4) reported that EAT was somewhat beneficial. Problems exist from service providers to clients in all systems including economic, social, and ethical. Previously, horseback riding was viewed as for either "cowboys" or the elite social classes. The acceptance of caring for and riding horses as not a socially eccentric hobby, but rather a therapy, has proven successful for various groups. There are few studies that examine the actual effectiveness of EAP for any particular clinical problem, such as autism (Graves, 2010), depression (Frame, 2006), trauma or posttraumatic stress disorder (Gestrin, 2009, Abrams, 2013), substance abuse or dual diagnosis (Dell et al., 2011, Stiltner, 2013), family violence (Schultz et al., 2007), ADHD (Devon, 2011), and risk for academic or social failure (Trotter et al., 2008, Fredrick, 2012). These groups, among others, will be discussed in depth within the confines of this study. More specific to this study, social interactions have shown improvement in recent investigations. Research has reported an increase in social interactions related to animal-assisted intervention (including horses; Grandin, Fine, & Bowers, 2010; O'Haire, 2013). Anderson and Meints (2016) concluded that EAA and more broadly, EAAT is a useful therapeutic option for improving social functioning in children and adolescents with ASD, as long as it is well-designed and implemented.

Existing Research

Due to a lack of specific research on parental stance and viewpoints on the value of such therapy; there are groups solely dedicated to providing this therapy. The three major organizations that currently focus efforts in equine-assisted psychotherapy are PATH International, EAGALA, and Equine Facilitated Mental Health Association (Dawson, 2014). The basis that one form of programming over the other has not yet been determined, thus, providing reason and desire to add input to the research. Currently, the Eunice Kennedy Shriver National Institute of Child Health and Human Development and the Horses and Humans Research Foundation are two examples of agencies that support high quality research investigating horse and human interactions (Berg & Causey, 2014). Understanding what form of therapy is successful, specific to individuals with autism will help narrow down key concepts to promote more availability of such therapies. Key concepts that have been reviewed include the history of not only animal assisted therapy, but equine-assisted therapy to better understand animals being used as a therapeutic resource. In addition, much research has been conducted in the epidemiological study of autism. Due to the extensive, wide array of spectrum disorders, additional forms of therapy need to be examined to determine if equine-assisted therapies should have a ubiquitous presence in the field.

The seminal research that informs this study includes the continued promise of improved functioning in various life aspects with differing groups of individuals. The theory that animals serve as a therapeutic, nurturing treatment provides the basis for present study. This study is intended to examine the overall theories involved in therapeutic interventions associated with equine-assisted interventions. One form of therapy may not be fully studied over the next, with

the conceptual framework allowing for broad approaches to equine-assisted therapies to focus deeper on the social outcomes of individuals with ASD after receiving such therapies.

Recent Research at Storm Harbor

Slippery Rock University Associate Professor in the Recreational Therapy, Betsy Kemeny, is a leader in realm of equine-assisted therapy. She is a recreational therapist who specializes in autism spectrum disorders and animal-human bond research. Dr. Kemeny serves on the Board of the American Therapeutic Recreation Association, the professional organization for recreational therapists in the United States (www.sru.edu). She has led research at the University involving Storm Harbor participants and has found useful information to lend to the field. Her work includes comparing approaches of goal versus non-goal directed in observing social outcomes in adolescents with ASD. Study results found that individualized goal-directed recreational therapy appears to be more effective in targeting specific areas of social competence and self-efficacy than peer-mediated recreation without individualized goal-direction (Kemeny, Hutchins, Gramlich, Russell, Kerr, 2015).

Another examination, Kemeny, Hutchins, Gramlich, Craine, & Crandell (2019), aimed to identify the best protocol between social engagement or groundwork prior to therapeutic riding. Study results indicated that it is important to determine what is best for the individual rider based on initial baseline assessment. Individuals may need social engagement activities prior to riding, or groundwork dependent upon their own skill set and social relationships. In a larger study, also completed at SHEC (2019), stress management was compared to therapeutic riding to control. Salivary cortisol was measured and found that therapeutic riding decreased cortisol levels as much for a stress management training as did therapeutic riding, with the control not having similar benefits. In studying cortisol levels, specifically in individuals with autism, it was found

that, while only temporary, therapeutic riding and stress management programs are equally beneficial in decreasing salivary cortisol levels. According to Kemeny, “What was unusual about this study is that we compared the youth with autisms to themselves in three phases, knowing that people with autism are extremely unique, this was more valid” (2021). These studies have proven that there is much research to be conducted in the field, and continued studies are pertinent to the retrieval of data.

The paucity of randomized controlled trials exists, therefore, the gap in research must be filled. Comparative studies exist, but also should be replicated to provide further clarity and understanding. Specific to parental input, much research needs to be collected to gain valuable input into programming needs or successes. Digging deeper into why parents would choose this type of therapy versus a medical office setting, medicinal avenues, or social skills groups is the intent and aim of the present study. Using Storm Harbor as a local site for data collection is a win for the university community in growth and progress within the field.

Significance of Study

This study is necessary to the field of special education to generate additional research in the growing and evolving field of equine-assisted therapies as an alternative therapy for individuals with ASD. Due to no two cases of autism being alike, and the epidemiology not being truly defined, it is of utmost importance to study all avenues that may lend to furthering the field. This study may prove beneficial to individuals looking for additional forms of therapies besides the traditional medicinal or office provided therapies. While Occupational and Physical Therapies are the most widely known therapies for students with special needs, animal, music, and art therapies are also wonderful options (Dalien, 2021). Special Education services are constantly evolving to better serve the needs of individuals with disabilities. Animal therapy

services are now a recognized therapy, which will allow for more children to receive such services. Equine-assisted therapies should be considered an option based on continuing studies and research findings.

It is well known that therapy is essential for individuals with ASD however, narrowing down specific, evidence-based therapies has been a debatable factor. Many families with a child with autism will go to any length to help their child. “Given the number of non-evidence-based interventions currently marketed for the treatment of ASD (e.g., facilitated communication, holding therapy, secretin therapy), selecting efficacious interventions can be a challenging proposition for both parents and professionals alike” (Hawkins, et al., 2014). Since each case of ASD is individual and not like the other, it remains difficult for legitimate, evidence-based practices to be the only treatments used. According to findings by Berg and Causey (2014), demonstrated efficacy of Equine-Assisted Activities and Therapies (EAAT) is essential for parents, guardians, and participants to know whether EAAT is beneficial and what evidence exists to support this type of monetary and personal investment. Many families feel that unique diets, therapies, and supplements are the only option in their crusade to find a miracle cure. Such rehabilitations, as equine-assisted activities and therapies, are unique and require quality research to ensure that it becomes a viable therapeutic option for identified populations (Berg & Causey, 2014).

Clear data is present within the field of equine-assisted therapies and their use for individuals with ASD, however, research is needed to determine if a more wide-spread use of such therapy is advantageous to groups beyond those with ASD. On the contrary, there is much research in sensory integration and the positive effects of including such treatments. While equine-assisted therapy is not solely based on sensory integration, it does play a role in various

therapy approaches, including riding or simply handling of the animals. The overall purpose and significance of this project is to explore the current theories and framework related to equine-assisted therapies, and to better understand the relationship that may exist between equine-assisted therapies and providing support for individuals with ASD.

Research Questions

- Question 1: What are the perceptions of the guardians regarding the benefits of their child participating in equine-assisted therapy programming?
- Question 2: What is the effect of the equine-assisted therapy program on observable social changes based on parental input?

Need for Study

There is a great need for research within the area of equine-assisted therapies. Due to an overwhelming number of equine therapy types, not one can be considered more essential or beneficial than the next. Research must continue to be conducted to determine the best course of action for not only each client population but also each disability or functional need. Necessary interventions should be adapted to best serve the purpose for each individual therapeutic gain.

Equine-assisted research will improve the practice of social skills instruction in individuals with ASD and therefore, contribute to the larger community. The availability of such programs may become more prevalent with additional research supporting the need. An overall desire of such programming would essentially lead to additional interest, thus driving the number of interested parties. With continued success in social improvements, one must assume the improvement of social skills instruction with individuals with disabilities will begin to develop. The progress will occur based on the animal interactions, as well as the increasing comfortability with social situations. Traditional methods of social skills instruction may be adapted based on

findings that include links to animal-assisted therapies. In particular, AAI with horses is considered a promising practice as an alternative for more traditional forms of therapy, although there is a need for further investigation to validate equine-assisted programs for the ASD population (Umbarger, 2007). Bachi (2012), as well as Chalmers and Dell (2011) also noted that a lot of the research in using horses focused on the physiological benefits instead of the psychological benefits. Providing additional research in the field is rewarding and recommended in order to fully engage in best practices. The terminology being used will need additional refinement, and a common vocabulary should be narrowed down in field discussions. As this field grows, a standardized language is essential for clarity (White-Lewis, 2019). The current usage for equine-assisted therapies will be more profound as additional research is rendered.

This study is relevant to Special Education, and more specifically, Autism Spectrum Disorder, due to the overwhelmingly positive results that have been shown thus far in research at the national level and personal triumphs that are shared throughout the data collection. It is through research that trends and theories are tested and proven to be effective. In a study completed by Macauley and Gutierrez (2004), parents reported through a questionnaire that their children made greater improvements in speech and language abilities, motivation, and self-concept following hippotherapy when compared to traditional clinic-based therapy. More recently, a qualitative study completed by Xue-Ling Tan and Graetz Simmonds (2017) determined through semi-structured interview questions that parents perceive equine-assisted interventions as beneficial in improving different aspects of psychosocial functioning in their children with ASD. Results such as these indicate not only a need, but also desire to continue the study of equine-therapies as an emerging non-conformist form of therapy. The field of Special Education welcomes unconventional means of therapy for individuals with disabilities,

especially those with autism. Special Education programming within school settings could utilize such avenues for supporting a curriculum that includes such untraditional therapies. Future research in this field will enable additional rationale supporting such therapeutic interventions. Generalizations will be made through continued research in the field.

Delimitations

This study is limited to participants attending the Storm Harbor Equestrian Center on the campus of one equine facility in western Pennsylvania. Participants' include parents/guardians of children ranging in age from five to eighteen, diagnosed with ASD according to the DSM-V criteria, and the child has participated in a minimum of four sessions. The study interviews are to be conducted in the spring of 2021. Given the COVID-19 global pandemic, participants must follow appropriate protocol. Sessions have been postponed and even canceled due to regulation and mandates from the state of Pennsylvania. Thus, it is unclear if this will affect participation at time of data collection.

This research involves a case study approach to determine if equine-assisted therapy is beneficial for individuals with autism. Observations will occur during therapy sessions and in-depth interviews will be used for study results. The semi-structured interviews will be conducted with family members of equine-therapy participants of Storm Harbor Equestrian Center to determine if correlations can be made through participating individuals on results, specifically examining if any positive social outcomes are observed based on parental viewpoints and input. Gaining insights into parental opinion and viewpoint of such services will help guide future endeavors of equine therapies, specific to individuals with autism.

Definition of Terms

Therapy: treatment intended to relieve or heal a disorder.

Animal-assisted therapy: Animal-assisted therapy is an alternative or complementary type of therapy that involves animals as a form of treatment.

Equine-assisted therapy: Equine-assisted therapy encompasses a range of treatments that involve activities with horses and other equines to promote human physical and mental health.

Disability: A physical, mental, cognitive, or developmental condition that impairs, interferes with, or limits a person's ability to engage in certain tasks or actions or participate in typical daily activities and interactions.

Autism spectrum disorder: Autism spectrum disorder (ASD) is a complex developmental condition that involves persistent challenges in social interaction, speech and nonverbal communication, and restricted/repetitive behaviors.

Hippotherapy: The use of horseback riding as a therapeutic or rehabilitative treatment, especially as a means of improving coordination, balance, and strength.

Horsemanship: the art of riding, handling, and training horses.

Psychotherapy: (psychological therapy or talking therapy) is the use of psychological methods, particularly when based on regular personal interaction with adults, to help a person change behavior and overcome problems in desired ways.

Sensory integration: a neurological process that organizes sensation from one’s own body and from the environment and makes it possible to use the body effectively with the environment.

Human-animal bond (HAB): a mutually beneficial and dynamic relationship between people and animals that is influenced by behaviors essential to the health and wellbeing of both.

Cognitive Theory: is an approach to psychology that attempts to explain human behavior by understanding your thought processes.

Attachment Theory: is a psychological, evolutionary and ethological theory concerning relationships between humans.

Biophilia Hypothesis: idea that humans possess an innate tendency to seek connections with nature and other forms of life.

Occupational Therapy: (OT) is a branch of health care that helps people of all ages who have physical, sensory, or cognitive problems.

Physical Therapy: (PT) the use of therapeutic exercise, modalities and treatments to help children alleviate pain, regain strength and range of motion, master proper body mechanics for balance and flexibility and improve gross and fine motor skills.

Speech and Language Therapy: provides treatment, support and care for children and adults who have difficulties with communication, or with eating, drinking and swallowing.

Attention Deficit Hyperactivity Disorder: is a disorder marked by an ongoing pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning or development.

CHAPTER 2

Introduction

Literature reviews reveal the findings, conclusions, and theories of previous studies or text and identify the connections between those works and the proposed study (Creswell, 2003; Rudestam & Newton, 2001). The literature review reveals gaps in the selected area of study and areas in need of further inquiry within the current literature base, thus placing the current study in the context of the larger field (Ferrari, 2016). This literature review intends to analyze the history of animal-assisted therapies and specifically examine the growth in popularity of equine-assisted therapies. One of the main purposes linked to the present study's intended outcomes is to ensure that previous studies on equine-assisted therapies are reviewed and knowledge of the topic helps maintain perspective pertinent to the therapy. The review will investigate the benefits of said therapies and trends in their development of propitious programming. The aim of this literature review is to provide an overview of animal-assisted therapies, a historical overview of said therapies, theories that are guiding conceptualization, followed lastly by beneficiaries of such programming. This literature review, as with many including qualitative outcomes, is a synopsis of the most recent literature on equine-assisted therapy in order to provide the framework for this study.

Review of the Literature

History

Animals have been used for centuries in healing and incorporation into daily life. The early Greeks made use of horseback riding, or horsemanship, in an effort to soothe individuals who were suffering from untreatable or incurable maladies (Notgrass & Pettinelli, 2015). Riede (1987) stated that the first full documentation of the healing effects of horseback riding was

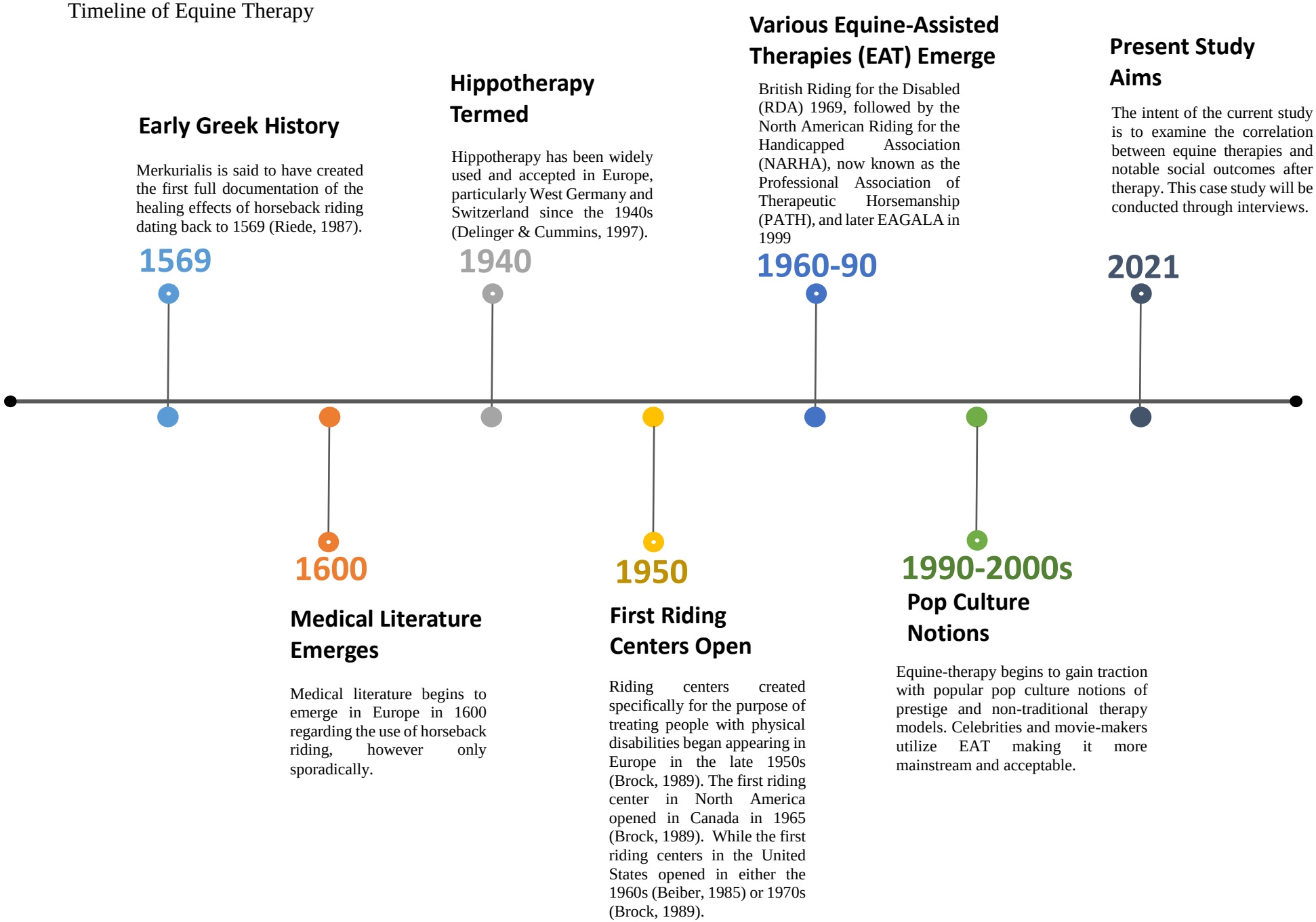
created by Merkurialis in 1569. However, while horseback riding is mentioned in various forms of medical literature from 1600 to 1940, it appeared to be used only sporadically in Europe (DePauw, 1986; McCulloch, 2001; Riede, 1987).

Human-animal bond (HAB) and interest in human-animal interactions have become more prevalent in recent years. Turner (2007) points out that HAB is a well-documented phenomenon that has been around since humans began domesticating animals. Although there is a wealth of testimonials documenting the significance of animals in our lives, Knight and Herzog (2009) point out that there is limited empirical research that has explored these relationships. Riding centers created specifically for the purpose of treating people with physical disabilities began appearing in Europe in the late 1950s (Brock, 1989). The first such riding center in North America opened in Canada in 1965, and the first centers in the United States opened in either the 1960s (Beiber, 1985) or 1970s (Brock, 1989).

Greater research and apparent pop-culture notions of intrigue have allowed such therapies to become well-received in the world of psychotherapy. The impetus for the development of modern day equine-assisted activities and therapies (EAAT) is credited to a Danish dressage rider named Lis Hartel, who won an equestrian silver medal at the 1952 Olympic Games despite being partially paralyzed by polio (Berg & Causey, 2014). “Films and best-selling books portray horses as full-fledged characters, with their own personalities, emotions and wounded psyches” (Stewart, 1998). A 2009 release of a documentary feature film called “The Horse Boy,” helped the therapy gain momentum and popularity according to those in the field while highlighting the improvement of the child’s condition improved with contact with horses. Even more recently, celebrity Selena Gomez turned to equine therapy in 2017 as a part of her recovery process while in a treatment center (Peiffer, 2017). While the field of equine-therapy continues to grow, so will

the research and significance of its treatment. It is the hope of this study to provide additional input to the field, through the in-depth qualitative case-study approach. The prospect of this exploration providing insight into not only Storm Harbor participants, but replicated to other studies to promote interest into this type of therapy is the overall goal.

Table 1.
Timeline of Equine Therapy



Animal Assisted Therapy

Animal-Assisted Interventions (AAI) has been found to be beneficial to humans in several ways. According to Nimer and Lundahl (2015), for centuries, people have noted that animals can have a positive influence on human functioning. Animal assisted interventions is a broad term used to describe the use of animals, of varying species, in diverse ways to benefit humans. "Animal assisted therapy, education, and activities are examples of types of animal assisted intervention" (American Veterinary Medical Association, 2021). Animal-assisted therapy (AAT) is a goal-directed intervention in which an animal that satisfies certain criteria is an integrated part of a treatment (Braastad & Berget, n.d.). Research has shown health benefits, such as lowering blood pressure, due to the human-animal interaction. Braastad and Berget (n.d.) determined that animals may be beneficial to humans because they are part of nature, are pleasant to brush and stroke, serve as a social counterpart, serve as a subject to care for, or serve as a subject for work that the person manages to do, resulting in enhanced self-efficacy. While conventional wisdom has long supported the use of animals in promoting human wellbeing, only recently has science investigated the therapeutic effect animals have in alleviating mental and medical difficulties (Nimer & Lundahl, 2015). The value of AAIs for children with ASD was first recognized by Levinson in 1964, and since then studies have indicated that animals can help by acting as companions or service animals (Harris & Williams, 2017). Although AAT is not considered to be a stand-alone intervention, when used alongside additional medicinal and therapeutic avenues, the benefits can be remarkable.

Theories Guiding Conceptualization

According to Norman (2002), a person's affect changes how the brain processes information in that, if an activity is pleasant, it is easier to do, and if an activity is unpleasant, it is

inherently more difficult. There is guiding research in the area of equine-assisted therapies that shows improvements in different life aspects. It was even found that due to the horse's heartbeat being systematically close to a human heartbeat, the connection is likely a phenomenon that provides humans with a deeper connection to the animal (Norman, 2002). Researchers have learned that humans and horses tend to align their physiological responses to emotional stimulation due to the sync of the heartbeat that occurs. Several theories have shown to be proven successful when equine-assisted therapies and activities were utilized. These learning theories are discussed in equine-assisted therapy and activities. Learning theory may explain the reduction in anxiety and arousal during AAI (Brickel, 1985, Friedmann et al. 1991, Friedmann & Thomas, 1995, Wilson, 1991). When the focus is being averted from pain and the participant feels in control, coping abilities improve, self-efficacy and self-esteem rates increase and self-perceptions are strengthened. The three main theories that are most notably linked to animal-assisted interventions and will be discussed in depth include the Cognitive Theory, Attachment Theory, and the Biophilia Hypothesis.

Cognitive Theory

First, Cognitive theory is an approach to psychology that attempts to explain human behavior by understanding the client's thought processes. Cognitive theory is a widely used treatment for various psychological disorders. Cognitive theory, when combined with behaviorism, creates the cognitive-behavioral theory (CBT) and can be an effective means of therapy when EAT is used in conjunction. The use of CBT and EAT promotes self-growth and acceptance in various ways.

Self-efficacy is described as a person's belief that one can successfully produce the desired outcome by their own actions (Bandura, 1997). Through EAT, individuals are able to

show self-efficacy by exercising mastery of horsemanship skills, feeling safe and secure around the horse, and the belief that they can interact and handle the horse provides encouragement. In both qualitative and observational studies of EAAs and leisure activities with horses, the participants have reported an increased belief in success and feeling of mastery through learning to handle and interact with the horse (Hauge, Kvalem, Berget, Enders-Slegers & Braastad (2014). Along the same lines, performance accomplishment is often desired and achieved through EAT. The single most efficient method for achieving increased self-efficacy is performance accomplishment; the successful performance of a behavior that was once feared (Bandura, 1997). Clients are able to successfully master the art of grooming and caretaking long before they even mount the horse. This nurturing builds self-esteem and self-sufficiency and shows the rider the feeling of safety and a warranted loving relationship. Social support is derived from relationships. A relationship fulfills basic needs such as emotional closeness and safety, social integration, a sense of belonging, guidance, and the opportunity for nurturance (Weiss, 1974). Mastering skills related to handling and interaction with a large animal may give a feeling of accomplishment and competence important for self-esteem (Karol, 2007; Levinson, 1978).

Attachment Theory

Next, the Attachment theory is most linked to human connection; however, continued research shows links in human to animal connections. This theory describes social bonds as a further development of the most basic social bond, the attachment between mother and child (Bowlby, 1969). Attachment is a deep and enduring emotional bond that connects one person to another across time and space (Ainsworth, 1973; Bowlby, 1969). Results were favorable particularly when used in equine-facilitated psychotherapy with Vietnam Veterans. In a study

completed by Bergon (2014), participants were able to display empathy with the horses, an emotion which is reported to be intrinsically linked to parental attachment styles (De Paul & Guibert, 2008) and therefore often lacking in young people who have suffered dysfunctional attachment patterns and abusive childhoods. Attachment theory was used to understand clients' experiences in a qualitative study completed by Pugh (2010) to determine such benefits as non-judgmental partners; providing immediate feedback; helping clients to stay in the present; and giving clients an opportunity for reflection and projection. This study found that reciprocal healing between clients and horses in fact did occur (Pugh, 2010). EFP may support personal growth and healing because horses serve as attachment figures, provide a secure base for emotional exploration, and encourage non-verbal communication (Meyer & Sartori, 2019).

Biophilia Hypothesis

Another theory linked to human-animal interaction includes the Biophilia hypothesis. Biophilia is defined by Merriam-Webster as a "hypothetical human tendency to interact or be closely associated with other forms of life in nature" (2020). This theory directly correlates with equine-assisted therapies, due to the human-animal interaction and bond created through nature. Humans possess a genetically based propensity to attend to and be attracted by other living organisms (Wilson, 1984). Persons who spend even just two hours per week interacting with nature report greater satisfaction and better health than persons who spent less time in natural environments (Rogers, 2006). Symbiotic relationship can also be used to describe the connection between humans and horses and is similar in definition to biophilia.

While animals such as dogs, cats, rabbits, aquatic animals, and horses have all shown positive yields in the realm of animal-assisted therapy and activities research and various theories, the intent of the next section is to review, in greater depth, the horse-related therapies

and activities linked and associated with animal-assistance. Horses have the size, strength, perceived emotional connections to their handlers, and immediate response to the human behaviors of their handlers which make them well suited to animal-assisted therapies (Bachi, Terkel, & Teichman, 2012; Burgon, 2011; Reconnect Incorporated, 2013; Trotter, Chandler, Goodwin-Bond, & Casey, 2008). A study conducted by M.W. Firmin, Brink, R. Firmin, Grisby, and Foster Trudel (2016), aimed to determine six specific guiding effects of animal-assisted therapies including positive behavior patterns, trust, caring for others, empathy, cooperation and responsibility, and unexpected benefits. Results showed that even within varying treatment locations, such as hospitals, schools, psychiatric treatment centers, hospices, centers for treating juvenile behavioral problems, all can benefit from such therapies. Support for therapy models that demonstrate low attrition and provide attractive alternatives to office-based therapy in outpatient treatment settings would provide viable alternatives for clients, as well as therapists who are willing to offer such services if they can bill for them (Wharton, Whitworth, Macauley, & Malone, 2019). Equine-assisted therapies have become a popular source of treatment for clients of differing needs.

Equine-Assisted Therapies (EAT)

Much like animal-assisted therapy research, there is not a generalized theory, leaving many approaches and only a semi-structured approach for practitioners and clinicians to use. Karol (2007) suggests that equine-assisted psychotherapy is metatheoretical. Equine therapy could be noted as a broad term that has versed a series of definition changes and adaptations over the years. Overall, there are two organizations that accredit and certify riding centers and riding instructors within the field: The North American Riding for the Handicapped Association (NARHA) and also the Equine Assisted Growth and Learning Association (EAGALA) (Cody,

Steiker, & Szymandera, 2011). Essentially, equine-assisted research has many avenues, with no one method being better than the next. There is not one therapy type that is more highly regarded in the field; though with continued research, this is a possibility. The aim is to review each noted type of equine-assisted therapy to supply a broad overview.

Hippotherapy

Hippotherapy is a branch of EAT that includes the use of strategies of movement in order for the therapist to assist the client (rider) in physical and psychosocial benefits. Though it is more recently accepted and trialed in the United States, hippotherapy has been widely used and accepted in Europe, particularly West Germany and Switzerland since the 1940s (Delinger & Cummins, 1997). Hippotherapy can best be described as the treatment with the help of a horse and is derived from the Greek word hippos, meaning "horse" (Heine & Benjamin, 2000).

The American Hippotherapy Association defines hippotherapy as a physical, occupational, or speech therapy treatment strategy utilizing equine movement (2002). Physical effects have shown improvement after such therapy. The direct physical benefits include improved muscle symmetry (Benda, McGibbon, Grant, & Davis, 2003), postural alignment (Bertoti, 1988), facilitation of normal movement (Glasow, 1985; McGibbon, Andrade, Widener, & Cintas, 1998), improved balance and gait (Haehl, Guiliani, & Lewis, 1999), and improved respiratory and motor control of speech (Macauley & Lombardino, 2004). Results of a 2004 study conducted by Macauley and Gutierrez showed improvements in language and speech communication in everyday life after completion of hippotherapy sessions compared to the completion of a traditional therapy session. Based study results conducted by Washington University in St. Louis under the direction of Dr. Tim Shurtleff (2011), hippotherapy treatment may provide another alternative treatment that could enable children with ASD to participate

more in typical activities of childhood with their peers. While hippotherapy is a well-known equine-assisted activity, several others include the client being more responsible for the movement of the horse, relying less on the therapist for direct therapy while riding.

Equine-Assisted Psychotherapy

Equine-assisted psychotherapy (EAP) is a form of therapy that was created from the use of a certain modality that was initially conceived by Kersten (n.d.). EAP is founded on the principles of the Association for Experiential Education (AEE) but adds horses to make its experiential education modality unique (EAGALA, 2012; Kersten & Thomas, 1997; Mandrell, 2006). These principles include, but are not limited to, actively engaging the learner to take initiative; nurturing the learning process in order to promote success, failure, and risk-taking; encourages spontaneous opportunities; and includes the possibility to learn from natural consequences, mistakes and successes (Notgrass and Pettinelli, 2015). EAP is more free-form and allowance for interpretation during sessions is encouraged. No one set of skills is likely to be achieved, however, there is structure. Through providing the clients minimal instruction and non-directive tasks, therapists continue to identify and document progress towards specific goals and objectives throughout sessions. Because of these factors, the horse is much more than simply a prop in an experiential activity; rather, the horse is an integral part of the professional team (EAGALA, 2012).

Equine-Facilitated Therapy

Equine-facilitated therapy (EFT) adopts a client-focused approach to therapy, which encourages self-exploration of thoughts, emotions, and behaviors (Equine Assisted Growth and Learning Association [EAGALA], 2010; Masini, 2010). Activities aim to increase self-awareness of maladaptive behavioral patterns in relation to life-functioning and the maintenance

of client problems (Christian, 2005). This therapy includes a number of therapeutic approaches: cognitive behavioral therapy, solution-focused brief therapy, person-centered therapy, recreational therapy, psychodynamic therapy, and gestalt therapy (Frewin & Gardiner, 2005; Smith-Osborne & Selby, 2010; Taylor, 2001). Much like EFP, the control is given to the rider, with less emphasis on teaching or controlling the situation. There are no mounted activities, all work is done from the ground, and the treatment team includes a mental health professional (MH) and equine specialist (ES).

Equine-Assisted Growth and Learning Association

As a derivative of both EAP and EFT, and much like hippotherapy, EAGALA (Equine Assisted Growth and Learning Association) Model of Equine-Assisted Psychotherapy (EAP), is conducted with less reliance on the client's riding and focuses more on the groundwork. A branch of equine-assisted psychotherapy (EAP), EAGALA has evolved from the framework of EAP and chooses to serve by teaching therapeutic strategies that can be transferred to real-life settings. EAGALA is one of the leading EFT models and certification programs in the United States and Australia (EAGALA, 2010). EAGALA suggests that asking a person, group, or family to engage in an experiential task or activity with a horse while experiencing these emotions, and then processing each person's experience, can create vast openings to new insights and behavioral change within the participant(s) (AEE, n.d.; EAGALA, 2012; Mandrell, 2006). The primary goal of EAGALA is to promote interactions between the client and horse strictly from the ground.

EAGALA was actually created due to a split between researchers, Kersten and Thomas (1997). Thomas chose to move in a different direction, creating EAGALA in 1999. EAGALA strives to standardize the EAP form of psychotherapy through training, certifications, ethics, and

professionalism. EAGALA enlists people who are already professionals in their field (psychotherapists, teachers, nurses, organizational consultants, barn owners, horsemanship educators, etc.) and integrates their professional training into EAP (EAGALA, 2012). Typically, during an EAGALA session, one mental health provider (MH) and one equine specialist (ES) are conducting the session. According to Notgrass and Pettinelli, the MH and ES work together to facilitate, observe, and process the interactions between horse and participant (2015). As noted, EAGALA's model utilizes a team approach with at least two therapists, does not involve horseback riding, and is experimental and non-directive.

Equine-Assisted Learning

Equine-Assisted Learning (EAL) is a model of psychotherapy that focuses on educational goals through equine facilitated learning (EAGALA, 2010). Professionals are trained in the EAGALA psychotherapy model and again focuses on "groundwork" instead of the actual riding. The objectives of these therapeutic interventions are comparable to traditional treatment plans, however, the interventions in EAL include working with horses. EAL is analogous to hippotherapy, EFT, and EAP, and works in conjunction with EAGALA, and is simply using another term for the therapy being provided.

Equine-Facilitated Psychotherapy

Equine-facilitated psychotherapy (EFP) is yet another form of therapy that uses horses in a treatment approach. Though hippotherapy (which caters to clients with various forms of physical and cognitive disabilities) is perhaps the better-known way that horses are used in a therapeutic setting, Equine-facilitated Psychotherapy (EFP) – a methodology which uses horses as a therapeutic agent – has developed steadily over the past 10 years (Karol, 2007). The main idea behind EFP is that the horse has healing powers when simply given the opportunity to

groom, be around the horse, and to work with the horse, therefore, special therapists for mental health or psychology are less likely to be involved. The practice behind EFP involves those individuals who are more accustomed to the horses themselves. EFP focuses more on taking care of the animal, with the intent that these basic care-taking skills will transfer into everyday existence. "EFP is an existential action-oriented, experientially based psychotherapeutic method" (Karol, 2007).

Equine-Facilitated Learning

Equine-facilitated learning (EFL) focuses more on the social-emotional learning aspect of such programming. Burgon (2011) states that the aim of EFL is "to provide alternative therapeutic and learning opportunities through experiences with horses alongside specialist practitioners" (p. 165). EFL allows riders to not only work with and take care of the horses but also promotes riding for the benefit of developing social-emotional skills and competence. Greater emphasis is placed on educating the clients in proper grooming and riding techniques, and less free-form skills are practiced compared to the previously reviewed therapies. Emotional regulation, stress management, gaining confidence, resiliency, and communication abilities are all key points to equine-facilitated learning programs.

Equine-Facilitated Mental Health

Equine-facilitated mental health (EFMH) is a promising therapy for use in the treatment of various mental health components. Equine-facilitated mental health therapy has shown promise in treating veterans with depressive and anxiety disorders and reintegration issues (Ferruolo, 2016). Equine-facilitated mental health (EFMH) is one such modality that shows significant promise in treating depressive and anxiety disorders, as well as elevating self-confidence, self-esteem, self-concept, and overall well-being (Ferruolo & Sollars, 2013; Holmes,

Goodwin, Redhead, & Goymour, 2012; Klontz, Bivens, Leinart, & Klontz, 2007; Knapp, 2013; Lefkowitz, Paharia, Prout, Debiak, & Bleiberg, 2005; Schultz, Remick-Barlow, & Robbins, 2007; Smith-Osborne & Selby, 2010). Similar to other equine therapy types, metaphors are used to help promote the real-life setting and help the participants carry over learned techniques from the horse to other aspects of life. Schultz et al. (2007) and Klontz et al. (2007), believe that EFMH assists with anxiety and depression and that EFMH can increase psychological well-being. According to assertions of Meinersmann, Bradberry, and Roberts (2008) and Palley, O'Rourke, and Niemi (2010), that EFMH is not only effective in diminishing symptomology of psychological issues but also facilitates elevated self-esteem and trust. EFMH is found to be extremely effective and beneficial to combat veterans who are presenting with reintegration and psychological issues, and Schultz et al.'s (2007) hypothesized that EFMH will migrate to other populations.

Table 2.
Differences in Approaches

Approach	Mounted	Unmounted	Learning goals	Treatment goals	Mental Health practitioners	Associations
EAL		X	X		X	EAGALA
EAP		X		X	X	
EFL	X	X	X		X	PATH International
EFP	X	X		X	X	
Therapeutic riding	X		X			
Hippotherapy	X				X	AHA

Additional Concepts and Designs

While several other terms, such as equine-assisted experiential therapy (EAET) and equine-assisted counseling (EAC) are used and widely overlapped in the area of equine-assisted therapies and activities, one must focus on the concept behind the actual therapy, not necessarily the name of said therapy. As a whole, equine therapies rely on two common stances: a therapeutic approach from the ground, or an adaptive riding approach to achieve the same goal of the betterment of the patron.

Though many of these therapies overlap in methodology and design, they all differ slightly in the realm of equine-assisted therapies and activities. Particular to Storm Harbor, a variety of weekly Equine-Assisted Activities are offered by the PATH International certified instructors. One should note the differences in future research to possibly eliminate terms to come to a consensus on popular and appropriate approaches. The vast majority of research is minimal in each area and lacking to show true benefit in one outstanding framework. Positive results are being yielded in each, however, a true, standardized, and generalizable approach should be warranted. While one understands differences among non-mounted riding techniques and its benefits, versus riding therapies, lessening the overall terminology of such would help researchers find true methods of success.

Who Can Benefit

While animal-assisted therapy is not a new concept, the use in specific populations to provide a therapeutic, medical approach is more contemporary in research. Several sub-categories show advancement in treatment when provided EAT. EAT is not only proven to show medical achievements, such as lowering blood pressure and improved heart rate, but most notably, and more importantly, the physical, social, emotional, behavioral changes being shown

are significant. There are several groups of participants that benefit from EAT. We will discuss many of the groups below in detail. Though a synopsis is not provided for each classification in detail, a comprehensive table is included to show additional usage of EAT in categorical groups.

Individuals with Substance Abuse

Those individuals suffering from substance abuse have shown an increase in response to equine therapies. Addiction is a relevant topic hitting varying age groups and social statuses, particularly with the recent crippling opioid crisis affecting the United States. The novel idea of equine therapies has led to a further indication of such program success. Lecture filled-group sessions have been proven unsuccessful in attempts to curb addiction with young adolescents, therefore, the use of an unconventional approach of equine therapies have shown greater results. According to Enos (2015), some addiction treatment programs have seen results from the use of horses in treatment, particularly for younger patients, although most research evidence on equine therapy's benefits has taken place outside of the substance use treatment field.

Veterans and Patients with PTSD

The combination of posttraumatic stress disorder (PTSD) and traumatic brain injury has co-occurred in an alarming number of returning military veterans (Burke, Degeneffe, & Olney, 2009; French & Parkinson, 2008; Lew et al., 2009). As discussed previously with Equine-facilitated mental health (EFMH), veterans and posttraumatic stress disorder (PTSD) patients have found success with equine therapies. Veterans with PTSD frequently encounter challenges in addition to the common diagnostic symptoms of re-experiencing, avoidance, negative thoughts or feelings, and arousal/ reactivity. They are at risk for suicide, experiencing relational problems, employment issues, physical health problems, and legal difficulties (Gates et al., 2012; Koven, 2017; Park et al., 2017; Seal, Bertenthal, Miner, Sen, & Marmar, 2007). As prey animals,

horses are particularly sensitive to issues of incongruity, agitation, or increased autonomic activity in other animals (including humans), and trained equine handlers are able to identify the signals of confusion in the animal (Wharton, Whitworth, Macauley, & Malone, 2019). Hence, individuals with PTSD are able to easily engage with the horse in a meaningful fashion.

Physically Disabled

Individuals with physical disabilities, like those with cerebral palsy or multiple sclerosis, benefit by moving with the horse, exercising their idle muscles and relaxing their rigid ones (Stewart, 1998). EAT prevents muscle loss, loss of coordination, needing a wheelchair, pneumonia, and systematic affliction/hospitalization. It promotes balance and coordination, along with both core and hand strength. It focuses on gross motor skills in order to best meet the needs of the client. Individuals with a debilitating physical impairment are able to find success and build confidence through physical and occupational therapies provided and linked to EAT. "A growing number of physical and occupational therapists are using horses in treatment, contending that the physical rigors of riding strengthen the limbs and muscles of people with cerebral palsy, multiple sclerosis, paraplegia and other disabilities" (Stewart, 1998).

Cancer and Chemotherapy

Cancer and Chemotherapy patients have shown positive responses to equine-assisted therapies as well. Cancer patients and survivors alike work with horses to establish trust, self-confidence and learn nonverbal communication techniques while turning the focus away from their previous or current journey. As stated by Bertino (2020), reasons for trying equine therapies include change of setting, physical rehabilitation, distraction, feeling in control, and companionship. Though there is no known link to horseback riding and treatment of cancer

patients, the research points to caretaking and hippotherapy to be beneficial to this population. The nurturing effects that horses provide ensure the patients a calming nature.

Autism Spectrum Disorder

Lastly, and most notable for this specific research inquiry, autism spectrum disorder (ASD) represents a heterogeneous group of neurodevelopmental disorders characterized by persistent deficits in social communication and social interaction, and by restricted, repetitive patterns of behavior, interests, or activities (American Psychiatric Association, 2013). The prevalence of ASD is 6.2 per 1,000, and three to five more boys than girls have the disorder (Memisevic & Hodzic, 2010). While a more recent 2020 CDC report indicates the prevalence to be 1 in 54 children are diagnosed with autism spectrum disorder (Roth, 2020), showing the increase in prevalence and mystery surrounding the epidemiology. Autism affects all ethnic and socioeconomic groups, while minority groups tend to be diagnosed later and less often (Autism Speaks, 2020). Autism is referred to as a spectrum disorder due to the wide array of variants in each case. Autistic disorder, childhood disintegrative disorder, Asperger's disorder and pervasive developmental disorder – not otherwise specified (PDD-NOS) all fall under the merged autism umbrella. As stated by the most recent Diagnostic and Statistical Manual of Mental Disorders – Fifth Edition (DSM-5), Autism Spectrum Disorder includes Rett syndrome, selective mutism, language disorders and social (pragmatic) communication disorder, intellectual disability, stereotypic movement disorder, attention-deficit/hyperactivity disorder, and schizophrenia as differential diagnosis (American Psychiatric Association, 2013).

Individuals with ASD have shown improvement through the use of various therapeutic approaches. Identifying these approaches that engage individuals with ASD is essential in facilitating opportunities for lessening the impact of symptoms. While each program is based on

a different philosophy and uses unique intervention strategies, there is also considerable overlap in components of the programs (Corsello, 2005). Associating to this study, sensory and communication programming needs are most remarkable when tied to equine therapies.

As previously discussed, one claim most markedly tied to autism is sensory integration. Sensory input has been shown to improve in some individuals with ASD, resulting in more connection to a typical human response via the service provided. Related to the study, sensory integration is key in both mounted and unmounted equine-assisted therapy. Research has shown that unmounted activities, such as the brushing and stroking of the horse can produce a positive psychological state. In equine-assisted occupational therapy, the variety and novelty of activities (e.g. saddling, grooming, and riding) may engage children with ASD and increase their purposeful activities (Llambias, et al., 2016). As reported by the EGALA (https://www.eagala.org/index) using this method, all work is done on the ground and no riding is involved, thus leaving the horses as equal partners on the team and are left unencumbered to allow them to interact freely with the client. On the contrary, during horse mounted activities, the repetitive movements of the horse while riding encourages muscle movement, thus improving muscle memory. Dependent upon participants at Storm Harbor, both horseback riding instruction, as well as un-mounted activities such as grooming, equine handling, and equine care are incorporated. Sensory integration is also a key concept at Storm Harbor. The ALCOA Transition Trail was recently completed to allow participants to partake in sensory stations along the trail. Riders are encouraged via each station to see, pick up, touch, explore, and interact with numerous objects. According to Storm Harbor Equestrian Center, “This sensory trail is designed to provide passersby with an experience to engage their senses.”

Modulation insufficiencies, or sensory integration deficits, occur in children with ASD. Modulation allows filtering of irrelevant stimuli and maintenance of an optimal level of arousal that facilitates attention to environmental demands (Lane, 2002) with longer engagement in tasks. As maintained by Bass, Duchowny, & Llabre (2009), research has identified benefits of therapeutic riding for children with ASD, such as increased social motivation, and decreased sensation seeking sensitivity, as well as fewer stereotyped behaviors (Gabriels et al., 2012) and improvements in social communication and sensory processing during intervention (Ward et al., 2013). Effects may begin to occur in providing the rider opportunities to stimulate the vestibular and proprioceptive systems of the brain. The vestibular system is defined as the sensory system that provides the leading contribution to the sense of balance and spatial orientation for the purpose of coordinating movement with balance (Wikipedia, 2020). While proprioceptive input is essentially the sense of self-movement, by means of the nervous system and sensory receptors exchanging feedback. Engaging these impairments is necessary to initiate the compensation of the rider's nervous system. The horse's gait and speed may stimulate the vestibular system with either a calming effect by means of a quiet, unvarying gait or an alerting effect by means of a fast walk or trot (Lawton-Shirley, 2002). In a 2014 study conducted by Hawkins, Ryan, Cory and Donaldson, results showed moderate to large gains in body coordination, strength and agility, and overall gross motor skills as a result of participation in an equine-assisted therapy intervention.

Another matter tied to autism is the absence of appropriate social communication in individuals with the disorder. "Impairment in social interaction and behaviors are typically seen in ASD persons as they experience difficulty in starting interaction or communication with others, as well as shaping their appearance and behaviors properly into contexts" (Siriratraka,

2012). Social skills, communication, and language are often deficits shown in individuals diagnosed with ASD. “Deficits in social-emotional reciprocity may be most apparent in difficulties processing and responding to complex social cues (e.g., when and how to join a conversation, what not to say)” (DSM – 5, 2013, p. 53). Research has reported an increase in social interactions related to animal-assisted intervention (including horses; Grandinn, Fine, and Bowers, 2010; O’Haire 2013). Equine-assisted activities also provide sensory input, and research has shown that working with a horse (which is non-judgmental) can promote bonding and social connections in those with autism (Brown, 2019). Consistent with advantages of the equine-assisted therapy program on learning, perception, cognition, behaviors, emotions, and social skills are aims to be applied to continued research in the field. The present research study aims to focus on individuals with ASD in order to attempt to show the effectiveness of equine-assisted interventions and to show any correlation between equine-assisted therapies and social outcomes in individuals with ASD. However, as noted by Braastad and Berget, which effect that works may be related to the diagnoses of the patient and his/her individual characteristics and preferences (n.d.).

Additional Groups Whom May Benefit

Though these are only a handful of the populations EAT is proven beneficial, the table included below shows additional groups and their benefits. Researchers continue to build the repertoire of interventions that are accepted and proven in the realm of EAT. There is continued progress in investigating a topic that has been inadequately studied for years since its conception. The included Table 2 exemplifies the need for these therapies in various medical uses, with an array of clients and populations. Animal and human interactions has been shown to have an increased benefit and positive affect on individuals in need; therefore, it should be assumed that

equine interactions would carry similar benefits. Sadly, while the practice has been recognized by the associations of physical and occupational therapists, it is not approved by the American Medical Association -- or covered by the vast majority of insurers (Stewart, 1998) leaving many families to pay out of pocket for such services, due to a scant amount of research studies on the subject. Even over twenty years later, it is still an unapproved practice in the eyes of the American Medical Association. The need for supplementary investigations in the field is crucial for the development and progression of such practice.

Table 3.
Current uses of horses related to medical fields.

Modality	Related Health Issues	Interventions	Citations
Neurological	Stroke, Spinal cord injuries, Multiple sclerosis, Spina bifida, Fibromyalgia, Gross motor dysfunction with intellectual impairment	Hippotherapy, Therapeutic Horseback Riding	Beinotti et al., 2013 Knight & Coffey, 2016 Muñoz-Lasa et al., 2011 Angoules et al., 2015 Gilliland & Knight, 2012 Thorson, 2012 Giagazoglou et al., 2012
Psychological	PTSD, Autism, At-risk adolescents, Social interaction improvement, ADHD, Prisoner behavior reform, Substance abuse treatment	Interaction, training, groundwork, therapeutic riding	Burke et al., 2009 French & Parkinson, 2008 Lew et al., 2009 Gates et al., 2012 Koven, 2017 Park et al., 2017 Seal et al., 2007 Wharton et al., 2019 Grandinn et al., 2010 O'Haire, 2013
Orthopedic	Scoliosis, Hypermobility syndrome, Balance issues	Hippotherapy, Equine-Assisted Activities	Ihara, et al., 2012 Rigby & Grandjean, 2016 Mosulishvili & Loria, 2013 de Araújo et al., 2013
Service	Blindness, Visitation for hospitals, community centers, rehabilitation institutes and schools and extended care facilities	Guide miniature horses, Visitation	O'Brien, 2012 Beckett, 2014
Exercise/ Sport	Riding and driving for people with disabilities, Trail riding, Dressage, Show jumping	Recreational and competitive	Riding for the Disabled, 2018 United States Driving for the Disabled, 2018 Hara et al., 2015 Welker et al, 2018 Hall et al., 2011 Cravana et al., 2017
Speech	Speech therapy	Hippotherapy	Koca and Ataseven, 2016
Empowerment	Abuse victims	Increasing trust by interacting with the horse	Herd, 2008
Cancer/Chemo	Lymph edema	Extremity exercise with animal's warmth	Bertino, 2020

Health, Wellness, and Ecological Impact

Though particular and replication research is lacking in the area of equine-assisted therapies, there is enough evidence to support the use of such interventions and positive attributes. Not only has it been proven that individuals with varying levels of need continue to improve in various aspects of their lives with equine therapy, but it also is becoming increasingly popular within the last decade. To date, there are 26 medical uses of horse therapy. Although health and wellness are expansive terms that can take on various meanings, the intent of this overview is to focus generically on behavioral changes, social and emotional impacts, physical improvements.

Behavioral changes can be identified as those observable behaviors that indicate a need to be modified to best fit social norms. Clients may range from mild to severe in need and still show positive behaviors that are likely to be reinforced through equine therapies. Social and emotional impacts that would be most notable due to equine therapies may include but are not limited to communication improvements, socially appropriate skills, less agitation and anxious behaviors, and the ability to converse with others appropriately. Physical improvements have been shown in riders with numerous ailments. Those individuals that are physically impaired are able to make gains through the equine modality. Participants with Spinal cord injuries, Multiple sclerosis, Spina bifida, Cerebral palsy have all shown an increase in mobility and transfer of skills. “So whether it is a five-year-old with autism, a veteran dealing with PTSD, or a senior citizen battling dementia, research shows that individuals of all ages who participate in EAAT can experience physical and emotional rewards through the unique relationship formed with the horse that can lead to increased confidence, mobility, and self-esteem” (Kuropatkin, 2013).

Overall, the research that is available shows valid results yielding positive measures in the area of EAT. Grandados and Agís (2011) reported that special needs children show improvement in their sensory, skeletal, muscular, vestibular, ocular, and limbic systems as a direct result to horse therapy, in addition to experiencing psychological, social, and educational benefits that are sustained in environments outside of where the horse therapy takes place. Obviously, when provided EAT alongside additional therapies, results should warrant a grand nod to such services, and the promotion of additional programming should occur.

Purpose of Study

The purpose of this study is to provide additional research in the area of equine-assisted therapies, specifically, parent perceptions of such, due to the lack of such information vital to the growth and development of this therapeutic programming. Throughout the review of the present literature, it was evident that more studies should be conducted in this field. Studies have been completed, but very little has been determined on the parental viewpoint of EAT. Therapies are intended to provide support to individuals in need, and enough data shows that equine-assisted therapies are worthwhile and meaningful. By providing parental input into aforementioned programming, growth in the service would likely occur. As a result, groups requiring therapy, may turn to this alternative versus an office setting or medicinal form.

Another purpose is to add valuable information to support the Storm Harbor Equestrian Center and its methods to enhance Slippery Rock University's involvement and outlook of such programming. The SRU Foundation Inc. is the fiscal agent for the Storm Harbor Equestrian Center and by gathering information found from the case study, prospects of future enhancements will be warranted. The University is the first, and currently the only, equestrian

center in Western Pennsylvania to have Premier Accredited status through Professional Association of Therapeutic Horsemanship (PATH.)

As previously mentioned, differing terminology in the scope of equine therapies has deterred such research from proving beneficial in specific sets. This study aims to focus on equine-assisted therapies as a whole, in the hopes of using yet another broad spectrum of research to determine best practice. For the purpose of this study and considering the type of program research being conducted, equine-assisted activities (EAA) was considered the most appropriate term to encompass various techniques utilized at Storm Harbor Equestrian Center on the campus of Slippery Rock University in Western Pennsylvania and will be used throughout the present study.

Summary

The literature review in chapter two focused on the history of animal-assisted therapy, examined the development of equine-assisted therapies, and explored the populations that can benefit from such therapies. Through the development of equine-assisted therapies and activities, this diverse field continues to adapt which requires further research. The literature has shown a need for additional research in the field of equine-assisted therapy due to the scarceness of current research. The lack of a rigorous scientific approach in the study of these interventions results today as the main obstacle for the development of standardized methods in the field (De Santis, et al., 2017). This lack of research, combined with a lack of theoretical foundation has led the field to continue pushing for further psychological research. The succeeding chapter will delve into the methodology of the present research study.

CHAPTER 3

Methodology

This chapter describes the research design of the present study on equine-assisted therapies and individuals with ASD. This study requires data collection instruments that are intended for family members of individuals with ASD. The participants, sample size, design, and selection process are examined. The chapter also includes an overview of the procedures of data collection and in consummation how the data was interpreted to cultivate results. The informed consent and the process of protecting the human subjects are also discussed.

Perceptions and opinions of participants involved in equine-assisted programming have driven methodology of this qualitative case study. The intent is to determine if there are any correlations between therapy sessions and overall social interactions of program participants. Qualitative research can be invaluable to understanding real-life experiences and provides insights into perspectives of a theme. “Qualitative researchers are interested in understanding how people interpret their experiences, how they construct their worlds, and what meaning they attribute to their experiences” (Merriam, 2009, p. 5). This section describes the purpose and background of this case study research, defines case study methodology, common characteristics and explores misconceptions of case study methods, as well as implications for future case study research. It reviews the site selected for the current inquiry, in addition to the research ethics, participant selection, instrumentation, data collection and analysis, and closes with limitations of the study.

Purpose and Hypotheses

The purpose of this narrative case study is to present additional information in the field of equine-assisted activities and therapies due to the lack of federal systematic data. The

necessity for information pertaining to programming needs and successes is fundamental in obtaining the required funding, participants, and practitioners in the field. The intent is to bring additional findings to the field to continue to build the case for this type of non-traditional therapy.

The researcher's hypothesis is: After four sessions of equine-assisted therapy, EAT participants will show improved social-emotional functioning and increased social awareness according to parental/guardian input. The questions aimed at being answered through the study proposal include:

Question 1: What are the perceptions of the guardians regarding the benefits of their child participating in equine-assisted therapy programming?

Question 2: What is the effect of the equine-assisted therapy program on observable social changes based on parental input?

Site Selection

The site selection is on the Western Pennsylvania rural campus of Slippery Rock University's equestrian center, Storm Harbor. Slippery Rock is a quaint town in Butler County, Pennsylvania with close to 3,700 residents. Slippery Rock University enrolls close to 9,000 students each semester and offers more than 150 undergraduate degrees and 40 graduate programs, certificates, and online degree completion programs according to the University website. Storm Harbor Equestrian Center has been in existence since 2006 and plays a vital role in the promotion of recreational therapy for its participants. It is home to not only therapy services and sessions, but also the University's Intercollegiate Equestrian Clubs, SRU English and Western. Storm Harbor Equestrian Center is a Premier Accredited Center with PATH International (Professional Association of Therapeutic Horsemanship) offering weekly sessions

to people of all ages with cognitive, physical, emotional and social disabilities. Even local to this research, different equine centers are known for various approaches. When determining location of the study, Storm Harbor Equestrian boasts it is one of 881 accredited centers in the United States and the only of its kind currently in Western Pennsylvania.

Research Design

The proposed research methodology for this study includes a narrative case study approach. Yin (2003) states, "The distinctive need for case studies arise out of the desire to understand complex social phenomena 'because' the case study method allows investigators to retain the holistic and meaningful characteristics of real-life events" (p. 5-6). The rationale for this research design is to obtain personal data to determine positive likelihoods. This design was selected to strengthen the precision, the validity, and the stability of the findings (Miles & Huberman, 1994). Participant interviews will be conducted to gain qualitative information. Semi-structured, face-to-face in-depth interviews will be administered. Qualitative data in regard to the opinions of said program, efficacy of training, and program value will be collected through these in-depth interviews. Results will be coded using open coding to establish patterns, themes, and categories.

Rationale for Qualitative Research

Qualitative research utilizes a naturalistic approach that seeks to understand phenomena in content-specific settings, such as "real world settings [where] the researcher does not attempt to manipulate the phenomenon of interest" (Patton, 2002, p. 39). Qualitative research is essential in the field of social sciences. Denzin and Lincoln's (2000) generic definition of qualitative research states:

"Qualitative research is a situated activity that locates the observer in the world. It consists of a set of interpretive, material practices that make the world visible. These practices transform the world. They turn the world into a series of representations, including field notes, interviews, conversations, photographs, recordings, and memos to the self. At this level, qualitative research involves an interpretive, naturalistic approach to the world. This means that qualitative researchers study things in their natural settings, attempting to make sense of, or to interpret, phenomena in terms of the meanings people bring to them" (p.3).

Qualitative research often involves interpreting rich data and extracting the core concepts of that data as concise points (Chinh, Zade, Ganji, Argagon, 2019). In order to continue to provide growth in the field of equine-assisted therapy and its benefits, studies such as the present case study need to be qualitative in nature to get a true understanding of successes. Several goals were intended for selecting qualitative research, those that closely relate to Yin (2011) five features of all qualitative research:

1. Studying the meaning of people's lives, under real-world conditions.
2. Representing the views and the perspectives of the people in the study.
3. Covering the contextual conditions in which people live.
4. Contributing insights into existing or emerging concepts that may help to explain human social behavior.
5. Striving to use multiple sources of evidence rather than relying on a single source (pp. 7-8).

Through studying at Storm Harbor Equestrian Center, one can gain an understanding of all five features, in order to disseminate findings for a broader goal of accruing research to the field of equine-assisted therapy. In a study as such, one must decide the benefits of unique

perspectives and experiences versus the need for quantifiable data. It was determined that through reliable and credible interviews, a narrative case study is most important for this exploration. The more cases included in a study, the more persuasive an elucidation is likely to be. Including multiple cases is a common strategy employed in research to enhance the external validity of the findings (Merriam, 2009). Each case in a study, as part of the larger multiple case study, will serve to strengthen the conceptual framework (Ferrari, 2006). In this study, two to four participants will be chosen from study criteria in order to closely examine pre- and post-delivery of equine therapy service.

Theoretical Tradition of Case Study

Case study research has dated back to the nineteenth century. The origin can be traced to studies in anthropology and sociology, including LePlay's study of families in the late 1800s, Malinowski's study of the Trobriand Islands in the early 1900s and the University of Chicago's sociological studies in the mid-1900s (Creswell, 2007, p. 73). These investigations began long ago in the social sciences in order to gain information on a particular event or single subject. Crowe, Cresswell, Robertson, Huby, Avery & Sheikh (2011) determined that "a case study is a research approach that is used to generate an in-depth, multi-faceted understanding of a complex issue in its real-life context." Within case study design, single or multiple cases can be examined. The case(s) represent a single individual, several individuals, a setting, a program, an event, or an activity (Creswell, 2007). According to Hagan (2006), multiple-case study design consists of a few in-depth, illustrative cases. This appears to be the most appropriate for the present study design. Yin (2003, 2013) provides a framework for conducting a case study:

1. Presenting a clear and adequate specification of the theoretical issues and, from this, the questions that frame the study.

2. Clearly defining the unit(s) of analysis, including possible sub-units if these are warranted.
3. Deciding on the appropriate number of cases to explore within the study.
4. Clearly specifying the selection criteria for choosing the case studies.

Choosing an appropriate and effective data collection and analysis strategy.

5. Developing appropriate tests to ensure the validity and reliability of the approach taken in conducting the case study.

As documented by Merriam (2009), through looking at a range of similar and contrasting cases, a single-case finding can be understood, grounding it by specifying *how* and *where*, as well as *why*. The evidence from multiple case studies is often considered more compelling, and the overall study is considered more robust (Yin, 2014). While employing a small sample size, information can still be obtained to support the case. Each case in the study as part of the larger multiple case study, will serve to strengthen the conceptual framework (Ferarri, 2016). Including multiple cases is a common strategy employed in research to enhance the external validity of the findings (Merriam, 2009). To sum up the case study approach, Hartley (2004) cites "Case study research is a heterogeneous activity covering a range of research methods and techniques, a range of coverage (from single case study through carefully matched pairs up to multiple cases), varied levels of analysis (individuals, groups, organizations, organizational fields or social policies), and differing lengths and levels of involvement in organizational functioning" (p.332).

Theoretical Tradition of Narrative

“Narrative descriptions exhibit human activity as purposeful engagement in the world. Narrative is the type of discourse that draws together diverse events, happenings and actions of human lives” (Polkinghorn, 1995, p. 5). Narrative inquiry is a form of research that

studies experience. According to Ferrari (2006), narrative inquiry is an approach to the study of human lives conceived as a way of venerating lived experiences as a source of important knowledge and understanding. The need for such research in the field of equine-assisted therapy brings forth importance in gaining knowledge of first-hand human experiences. In order to make connections to the marvels in the realm of this therapy, first-hand accounts must be examined. White and Epston (1990) stated, "Not only do the stories that persons have about their lives determine the meaning that they ascribe to experience, but these stories also determine which aspects of lived experiences are selected out for the ascription of meaning" (p. 40).

Research Ethics and Human Subjects Protection

In order for a study to have sound ethical standards, the researcher needs to be committed to investigating under comprehensive, valid, and reliable research practices. "Qualitative researchers are guests in the private spaces of the world. The manners should be good and their code of ethics strict" (Stake, 2005, p. 81). It is of the utmost importance to ensure ethical practices and procedures are being followed when participants are being asked to share personal stories of their child with a disability. Respect and consideration for the individuals with disabilities within the present study is the top priority. All standards set by the Slippery Rock University Institutional Review Board (IRB) and the Storm Harbor Equestrian Center standards for conducting research will be followed to ensure the highest ethical standards are met.

Researcher's Role

The intent of the researcher is to maintain an onlooker status and not to be involved in the delivery of therapy services, but rather the retrieval of information. The role intended by this research study is to evoke the emotional response of participants when their child is provided with equine-assisted therapies. The researcher will partake in all interview sessions in order to

obtain qualitative data for the present study. The researcher will dig deep to understand the background in order to show a true picture of participants. Positive rapport and trust will be built through these in-depth interviews, allowing the participant to feel comfortable with researcher. In the social sciences, much of the research is to study people's lives, thus, trusting the research results is paramount in the applied sciences (Merriam, 2009). As stated by Ferarri, "findings from research are used to construct policy and legislation within their field. Research needs to be able to be trusted by those reading and applying their results" (2016). The researcher intends to safeguard participants and data and intends to use found information for the betterment of the field.

Site Permission

Slippery Rock University's Institutional Review Board (IRB) has granted permission to conduct this research at Storm Harbor Equestrian Center in Slippery Rock, Pennsylvania. The IRB accepted the study design and assures compliance with state and federal mandates involving research. Storm Harbor Equestrian Center requires all participants to complete forms which include rules, registration, emergency consent, and confidentiality policy; in addition to medical forms for individuals with a disability. In conjunction with the Center's forms, additional forms will be obtained for research purposes.

Revised Common Rule (ID 180065), Institutional Official: Animal Care and Use (ID 117989), and Human Subjects Research - Students Conducting No More than Minimal Risk Research (ID 28071) have all been completed courses by the researcher under the Collaborative Institutional Training Initiative (CITI) program for Slippery Rock University. These were all completed in June of 2020, within a year of the anticipated data collection.

Population and Sample

The sample will be selected from guardians of participating riders at Storm Harbor Equestrian Center. Participants will include those identified as those having a child with ASD that attends Storm Harbor adaptive riding sessions and have agreed to take part in the study. Participants for this study will include (a) parents of a child ranging in age from five to eighteen, (b) that are diagnosed with autism, (c) that have or will partake in a minimum of four equine-assisted therapy sessions at Storm Harbor Equestrian Center in Slippery Rock, Pennsylvania by no later than June 2021, and (d) will agree to participation in said study. Participants will be required to sign informed consent forms. The current research study involves no more than minimal risk to the subjects.

The tentative study timeline includes research being conducted in the spring of 2021, with results being verified in summer 2021. Due to COVID-19, study restrictions may be involved. All information will be coded to protect confidentiality. The privacy of participants will be maintained by the researcher.

Instrumentation

Interviews play an important role in the qualitative research process. According to Patton (2002), interviews are used because researchers cannot observe everything. In order to collect intensive, in-depth information for a few individuals, which becomes valuable to the data collection process, participants are asked to share personal stories and experiences as parents/guardians of partakers in the equine-assisted therapy program. Interviews will be conducted on the participants' viewpoints and coded. Information gained from these in-depth interviews reveals a greater understanding of positive outcomes and necessary future approaches. A semi-structured interview protocol ensures fidelity and validity among the participants. This

open-ended interview with semi-structured questions approach will allow for follow-up probing questions.

Data Collection

Data collection in case study research is typically extensive and draws from multiple sources of information (Creswell, 2007). Documents, archival records interviews, direct observations, participant observations, and physical artifacts are considered by Yin (2013) six major sources for collecting evidence in case study research.

Interviews, which play a vital role in qualitative research, are important to gain thoughts and feelings as those are not always observable. Patton (2002) stresses that interviews are used because researchers cannot observe everything. Speaking with and listening to participants allows the investigator to collect significant data. “Interviews are a valuable data collection tool when conducting intensive, in-depth interviews of a few individuals” (Ferrari, 2016). Interviews will be audio recorded to allow for the ability to review and analyze the information at a later time. Farber (2006) states,

“Tape recording interviews is an important part of the interview process, because unless you are gifted with infinite memory, it will be necessary to record your conversations so that you can later go back and analyze the ‘data’ from your interviews” (p. 370). In order to allow participants the opportunity to feel comfortable while being recorded, they will first be informed, permission will be secured, and benefits of audio recording will be explained. The participants also have the right to cease the recording at any time during the interview, which will also be reminded prior to questioning.

Open-ended interviews with semi-structured questions will be the approach used for this study. This will ensure follow-up probing questions may be asked. Patton (2002) notes that this

approach requires carefully and fully wording each question before the interview. Each interviewee will be asked the guiding questions from the interview protocol. (See Appendix A for interview questions). The questions are ordered in such a manner to allow the participant to feel comfortable with interviewer, openly share experiences, and allow time for the researcher to ponder secondary questions based on responses. In-depth interviews are expected to be conducted in approximately 30-45 minutes per participant.

Data Management

All information obtained during the interview and observation period will be kept in a locked filing system in the researcher's home to ensure privacy and concealment of confidential information. Any research will be maintained on the investigators locked personal computer, as well as on a jump-drive for back up. A password needs to be enabled in order to gain access to any of the information. Audio recordings will be used for research purposes then deleted post-study. The audio device will be securely stored in the locked filing system as mentioned. In order to maintain the highest level of confidentiality and privacy for participants, it is crucial that all data be securely maintained throughout the retrieval and reporting of information. After study results are tabulated and properly noted in the final dissertation; files will be destroyed within three months. Electronic files will be deleted from devices and paper copies of interviews will be shredded by the researcher.

Data Analysis

Upon completion of the study, the intended outcome of the data analysis is to answer the research questions posed. According to Merriam, the findings of the study should answer those proposed questions (2009). Narrative analysis will be utilized on each case, whereas the data within each case consists of a demographic questionnaire, observational field notes from the

researcher, and an interview. Narrative analysis is a method used to better understand the lived experiences of participants (Ferrari, 2016). Particular to this study, two to four cases will be analyzed and compared to extend the understanding of the therapeutic activities and attempt to generalize the findings. All data will be coded and analyzed to determine themes and patterns. Codes are used to identify keywords or phrases important to the research. Codes are tags or labels that assign units of meaning to the data and for the quick identification of the segments relating to the research questions and any potential themes (Miles and Huberman, 1994). By chunking data into associations, it allows for the research to be managed and organized.

Boyatzis (2009) describes a number of techniques for synthesizing qualitative data, through coding, into a structured thematic analysis. Thematic analysis will be key to identifying discernments from the semi-structured interviews. The thematic analysis to be conducted in this research will follow this basic configuration: first, iterative review of interviews, followed by design analysis, concluding with design synthesis. The repeated listening of the interviews will allow the investigator to gain a deeper understanding of key themes and expose any links in the data to help in the thematic analysis process. Coding will be frequentative in relation to findings within these themes in order to move into the design analysis, or extracting key data points from the interviews. Lastly, synthesizing the data points into themes will allow the researcher to identify key areas related to positive or negative outlooks on equine-assisted therapy.

Presentation of Results

The results of the present study will be delineated to interested parties through a comprehensive dissertation report. Specifically, the findings will be located in the fourth chapter

of the completed and defended dissertation. The conclusion of the dissertation ensures that study results are validated and accepted into the realm of reliable research. Research will be disseminated to any interested party after results are completed and compiled.

Limitations

There are several limitations of this qualitative study, as all research has limitations. One of the greatest concerns and critiques of narrative case studies is their external validity and ability to be generalized. Limitations include the small sample size due to the retrieval of data at only one Western Pennsylvania equine stable, especially narrowed due to the population of only participants having children aged 5-18 diagnosed with ASD. Due to this small sample size, the findings are not generalizable to the field of equine-assisted therapy with individuals with ASD. Another limitation is the time in which the study will be conducted. The four sessions will be monitored, resulting in a short time period for input and observation. These limitations may also include the small amount of available research in the field of equine-assisted therapy related specifically to social skills with individuals with ASD. Due to the global COVID-19 pandemic, participants were required to be mindful of socially distant practices, as well as the wearing of a facial covering for protection. This may be a limitation to the study as far as participant comfortability and rapport building. As further studies are conducted, additional research may help narrow down the field resulting in appropriate and approved forms of therapy. Future research will need to be conducted in order to provide opportunities for generalizability as well.

Summary

This chapter provided an overview of how this research project will be conducted, how the data is to be collected, and ultimately how the data will be analyzed in order to draw

conclusions. The qualitative narrative case study design is described in detail in order to serve awareness of the intent of this exploratory study. Themes in case study and narrative study are shown in order to have the reader abreast on research aims. In general, qualitative studies are intriguing by gaining access to personal stories and experiences.

Narrative inquiry is a way of understanding experience. It is collaboration between researcher and participants, over time, in a place or series of places, and in social interaction with milieus. An inquirer enters this matrix in the midst and progresses in the same spirit, concluding the inquiry still in the midst of living and telling, reliving and retelling, the stories of experiences that made up people's lives, both individually and socially (Clandinin & Connelly, 2000, p. 20). The examination of qualitative inquiry is important in understanding the goal of the study. The ensuing chapter will offer insight into the actual results, as the findings will be analyzed and presented. The findings of the study will help create a clearer picture of participant feelings on the equine-assisted therapy programs at Storm Harbor Equestrian Center.

CHAPTER 4

Introduction

This chapter will provide the findings of the study organized via research questions posed and themes that have arisen throughout the coding process. The emergence of these themes from the analysis of data is shared extensively. The purpose of this study was to determine the efficacy of equine-assisted therapy on social outcomes of individuals with autism based on parental viewpoint and input. This portion of the research will provide clarity on actual outcomes and determine if the study hypothesis of positive parental viewpoints regarding EAT and observable social outcomes related to EAT is valid. This chapter focuses on the three themes that stemmed from this research study aiming to answer the following research questions:

1. What are the perceptions of the guardians regarding the benefits of their child participating in equine-assisted therapy programming?
2. What is the effect of the equine-assisted therapy program on observable social changes based on parental input?

Three participants were interviewed for this research. These participants have met study criteria by having a child that attends Storm Harbor Equestrian Center in Slippery Rock, Pennsylvania; the child is age 5 to 18 years of age; and has a diagnosis of ASD. Interviewing parents/guardians of those who participate in the equine-assisted therapy sessions at Storm Harbor allows for identifying and soliciting knowledge from those who Patton (2002) calls, “key informants.” Key informants are distinctly knowledgeable about the inquiry setting and are able to articulate their first-hand knowledge. The insights of these key informants can be helpful in assisting the investigator in understanding events that have happened and the reasons why those events occurred. In particular to equine therapies, these parents have observed their children throughout

many sessions and have acknowledged differences in their child to varying degrees. An in-depth analysis of these degrees will be further explained later on in this chapter.

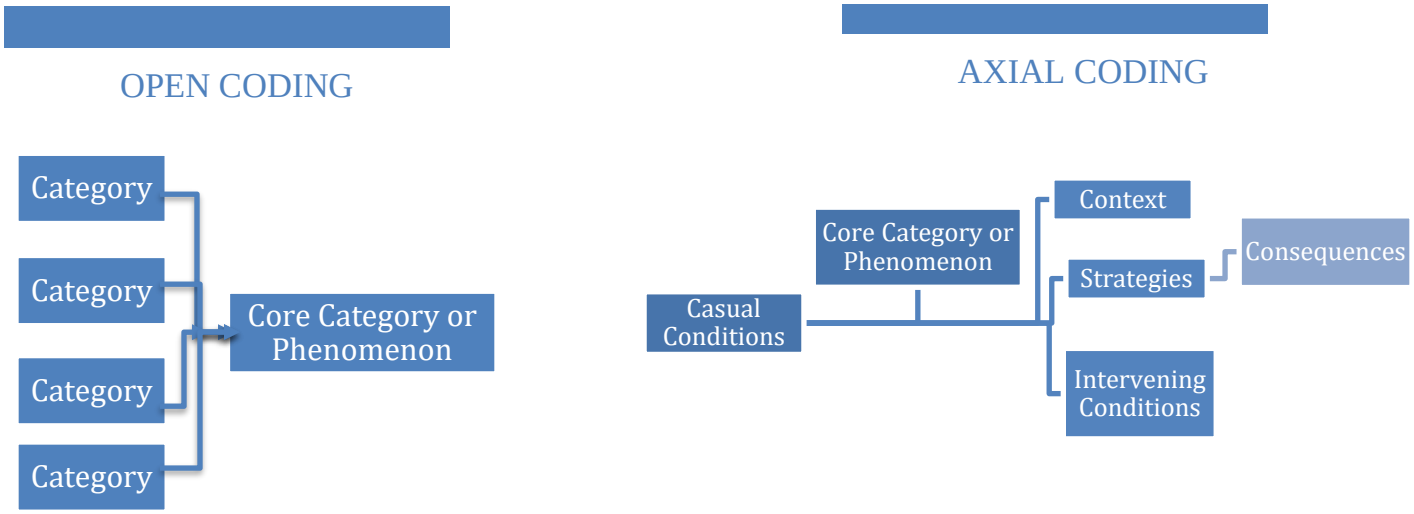
The interviews were all conveniently conducted while the participants' children were receiving EAT on September 13, 2021, in the Slippery Rock center. Interviews were held in a room separate from the riding arena, though there was a viewing window where the investigator and parents could watch the children. All interviews were conducted face to face and lasted approximately 20 to 30 minutes. Both interviewer and interviewees were wearing facial masks according with state and local guidance due to COVID-19 mitigations. This did not seem to have an effect on participation or comfortability. All participants signed formal 'Consent to Participate' as well as 'Consent for Audiotape' in order to audio record for accurate transcription post-interview (Merriam, 1998). Handwritten notes were also taken during each interview, which enabled the investigator to track key points to return to later in the interview or to highlight ideas of particular interest or importance.

Prior to beginning, and before posing the formal semi-structured interview questions, the participants were informed again of the purpose of the study, research procedures, expected benefits, their right to withdraw from the study at any time, and protection of confidentiality to review the consent form they signed. The investigator also provided personal information to establish rapport and gain their trust (Patton, 1990). The transcription process began after the interviews were concluded on September 13, 2021, and was completed by the following day. To ensure transcript accuracy, each transcript was reviewed while listening to the audiotapes. To ensure all information was transcribed accurately, each recording was listened to several times confirming no details were excluded. Transcripts were offered to the participants, all three declined to receive a copy. Informal follow-up emails were sent thanking participants for their

participation in the study. This email also allowed participants to provide any additional information or input they may have not added in the initial interview, to which none of the participants provided additional information.

This dissertation investigation followed the data analysis and coding procedures recommended by Creswell (2009) and Esterberg (2002). Esterberg (2002) suggests that open coding is a process where "you work intensively with your data, line by line, identifying themes and categories that seem of interest" (p. 158). With open coding, you break your data into discrete parts and create "codes" to label them. Additionally, Creswell (2009) charged the traditional approach in the social sciences that allows the codes to emerge during the data analysis (p. 187). Once the data from this research was examined thoroughly through the open coding process, the codes were reviewed for emerging themes in the data, moving onto axial coding. As Allen (2017) determined, in axial coding, you begin to draw connections between codes, and is one way to construct linkages between data. With axial coding, you organize the codes you developed in open coding.

Table 4.
Open Coding versus Axial Coding.



Axial coding is important in case study research due to the makeup of the narrative data. Being able to explore and find relations among data categories can make the coding process one of cause and effect. [Axial coding] “aims to integrate codes around axes of central categories; the essence of axial coding is interconnectedness of categories” (Awwad, A., 2018). Axial coding was able to determine two central categories; (1) EAT programming is beneficial to children with ASD, (2) improvement of overall muscle strength due to EAT, which then result in links to the consequences of each, substantiating the data. Overwhelmingly, the findings regarding the benefits of EAT programming were validated by each of the three participants, resulting in twenty-five coded results. The second was the improvement in muscle strength and tone, concluded at eleven remarks. The table below shows the two core categories, or central coding categories, that were determined through the coding process.

Table 5.
Present study coding totals.

Central Coding Category	Tally	Consequence
EAT programming is beneficial to children with ASD	25	EAT has shown benefits to these students with autism and is viewed as a remarkable service
Improvement of overall muscle strength due to EAT	11	Low muscle tone may be strengthened or improved as a result of EAT

Participants

As previously mentioned, three participants were interviewed for this research. Study criteria was met by having a child that attends the participating Western Pennsylvania equestrian center; the child was 5 to 18 years of age; and has a diagnosis of autism spectrum disorder. Participants were selected based on the aforementioned criteria, as well as their consent to participate in the research. Participants were at no time pressured into participating or continuing

with questioning once interviews began. All three participants willingly provided responses to all questions asked and did not refrain from providing the examiner with personal and medically related data.

Table 6.
Participants interviewed for research.

Participant (Pseudonym)	Child's Name (Pseudonym)	Child's Age/Gender	Child's Disability
Sharon	Robert	12-year-old male	Autism, ADHD, Anxiety, Hyper-Sensory Disorder
Debra	Michael	10-year-old male	Autism, Apraxia, Anxiety, ADHD
Ann	Kenneth	13-year-old male	Chromosome Disorder, Autism, Epilepsy, Bone-Marrow Disorder

Sharon (Robert)

Sharon (pseudonym) was the first participant to agree to study requirements and sign consent. Her son, Robert (pseudonym), is a twelve-year-old male diagnosed with autism, attention deficit hyperactivity disorder (ADHD), anxiety disorder, and hyper-sensory disorder. She explained that the age of onset for his ADHD and anxiety diagnosis was five; while his autism diagnosis and sensory disorder later at age nine. Robert participates in Occupational Therapy and Counseling Services concurrent to equine-assisted therapy. He has participated in music therapy in the past. Sharon shared that Robert has attended Storm Harbor for approximately five years. She explained that Robert has loved the horses from the very beginning of attending this therapy, noting that his favorite part of the Storm Harbor sessions is the horseback riding itself, while she playfully added that his least favorite would be the drive to get there. When asked what changes, if any, she would like to see made to the

programming, Sharon quickly replied, “none.” One advantage she discovered after participating regularly was that siblings can also participate. She said that Robert and his sister rode together in the program for two years.

Debra (Michael)

Debra (pseudonym) was questioned secondly while her son Michael (pseudonym) participated in his therapy session. Michael is a ten-year-old male diagnosed with autism, apraxia, anxiety disorder, and ADHD. Debra noted that these are all managed by medication in the home. Michael is considered non-verbal. Debra explained that Michael is a twin; he and his brother were both full-term deliveries at 9 pounds 4 ounces and 9 pounds 10 ounces, respectfully. She knew that something was different with Michael from day one. She explained that he was first diagnosed with developmental delay, then non-verbal, then around three years old “they wanted to give him Asperger’s [diagnosis] then the umbrella term came and they decided on autism.” Michael receives Occupational Therapy, Physical Therapy, Speech and Language Therapy both in school and as outside services. She explained that her family had moved from Cincinnati, where he used to attend hippotherapy and aqua therapy. Michael has been attending Storm Harbor for close to three years, minus the COVID-19 pandemic, so probably a year total. She described Michael’s favorite part of EAT being the movement, sensory input of the horse, and the helmet as his least favorite, commenting that “he puts it on right before he walks out and not a minute sooner.” When Debra was asked, what changes if any, would you like to see made to the program, she said “I really like the program, maybe if they had more goal-lined, like the hippotherapy, more goal-oriented, goal outline or formal report.” She added that she has always been willing to try “anything, diet, anything that has no negative effects to it.” She also added that she realizes that some parents attempt to try different

methods to help their children with autism, but she knows that equine-assisted therapy can only prove beneficial. She went on to say that she enrolled Michael in the sessions to not only strengthen his core but to give him something to do outside of school. His twin plays basketball, so the main thing was to give him his own activity to do outside of the school setting.

Ann (Kenneth)

Ann (pseudonym) was the final participant to provide consent and meet study criteria. Her son, Kenneth (pseudonym), is a thirteen-year-old male, who has a chromosome disorder, she stated "I always get the numbers wrong, but I believe it is 20Q13/33 deletion." Ann further explained that they first realized something was wrong at six days old because he started having seizures, so Kenneth's diagnosis of epilepsy was found early on. She explained that the neurologist suggested that he be tested to see if he had a chromosomal abnormality. Kenneth has also been diagnosed with autism by a psychologist, while she explained that Children's Hospital of Pittsburgh and Watson Institute did not agree. She added that the psychologist may have given him the autism diagnosis to receive additional services. She went on to say that he has "low muscle tone, a bone-marrow disorder, very significant developmental delays, and he is non-verbal." Ann stated that Kenneth receives Occupational Therapy, Physical Therapy, and Speech and Language Therapy, in school. He also receives Applied Behavioral Analysis (ABA) Therapy. Ann also explained that during the summer, since he is not in school, they try to get him outside Occupational and Physical Therapies. Kenneth has been attending Storm Harbor sessions for around three or four years, Ann thought, and commented that "last year was a bust with COVID." Ann determined that Kenneth's favorite part of EAT is the sensory input. "We have a rocking chair at home that he loves to sit in and rock in, so I think he really enjoys that." As far as his least favorite part, she thinks putting on the helmet. "He always thinks we're

going to pinch him below the chin, so it must have happened at one time." When asked what changes, if any, would you like to see made to the programming, Ann said that she's often thought about and said that she probably would have to look into, but "I don't know if there are opportunities for me to ride with him. I know they have the program, my husband is a veteran and I can ride along with him if I want, so similar for the children, for me to ride along. I think that would be neat." Ann added that this is something that Kenneth can do into adulthood. "He's 13, transition is a really big scary thing for me because everything stops and this is something that he can continue." Ann, like Debra, replied with reasoning for attendance in wanting to give him the ability to do something outside of school, and have an extracurricular activity that could be his own.

Presentation of Findings

When initially reviewing the findings, there were clear links that were able to be found based on the overarching input pointing to the similarities. However, when digging deeper into the coding process, additional themes became apparent. These themes are categorized in the following paragraphs based on the research questions of the present study. The two guiding research questions will be reviewed in-depth based on findings linked from the interview questioning.

Research Question One: What are the perceptions of the guardians regarding the benefits of their child participating in equine-assisted therapy programming?

Themes that arose through the research in the perception of EAT programming being beneficial to children with ASD were overwhelming. All three respondents replied without hesitation when asked to offer advice to others who might be considering enrolling, that anyone who is thinking about registering a child in EAT (specifically at Storm Harbor) should

sign up. Sharon stated, “Definitely worth it, well-trained staff and horses. Parents are all there for the same reason.” Debra advised guardians to “definitely try it” stating that she “tries anything; such as diet, anything that has no negative effect to it.” While Ann says, “Definitely, it’s worth the time,” adding there are people who come from far away [to receive therapy] so it’s worth it and she advised parents to “see if there is access to funding.” All three mothers were eager to share this answer and did not require thought prior to answering. The positive attitude concerning the overall programming, individuals involved in the delivery of service, and ease of enrollment was noted.

A second theme that was found was the statement of the children having low muscle tone and how equine therapy has improved their overall muscle strength. All three respondents commented throughout interview questions that their son has low muscle strength and or low muscle tone and that the Storm Harbor sessions have aided in positives for their child in this area. All three respondents explained that this was the main reason for enrolling their child in such therapy.

Sharon explained that one reason for choosing equestrian therapy was that it was known for helping strengthen the core and focus. She explained through further questioning that she enrolled Robert in the sessions because of this, and said that [outside of therapy] “he does a lot of flapping and hitting his belly, while this goes on, you don’t see him flapping at all.” She indicated that Robert sits up a lot straighter during therapy sessions when compared to at home.

In line with reasons for choosing equine therapies, Debra also considered this therapy to be important for her son, Michael’s “really low muscle tone.” As a child, she explained, “he would always want to go on a swing, but would just fall backward.” She noted that a bonus to the programming was not only riding the horse but they have also taught him to buckle a seat

belt, along with core strengthening exercises and balance training. Debra shared stories of Michael collapsing into a ball at home and being in the fetal position a majority of the time. When asked what the most obvious advantage she felt EAT offered, she answered with him being able to sit up, his balance. She exclaimed, “When he’s here he’s sitting up. He’s sitting up tall!”

Ann also explained that Kenneth has low muscle tone, that which is one of the reasons they decided to enroll him in the sessions after someone recommended it to them. “I had heard positive things about how it was calming to children who were autistic and just generally very therapeutic for them, so we looked into it. She linked the movement of the horses to his sensory needs, as Kenneth’s favorite part of EAT. Kenneth requires therapies that help his low muscle tone, while also proving safe for his bone-marrow disorder, seizures, and chromosome disorder. She noted that he has attended aqua therapy, but that EAT has been the most accommodating for their family. Ann added that when Kenneth came back to therapy after the center reopened after the COVID-19 pandemic closures, he was not sitting up straight and turning around on the horse during the therapy session, and there was a definite regression compared to his previous sessions prior to the shutdown.

Parental viewpoints of equine-assisted therapy sessions, specific to Storm Harbor, were favorable. All three participants were elated to share their experiences of EAT and were willing to offer any insight to any family considering this opportunity. The parents were expressing great praise and enthusiasm in explaining their stories. The highly complimentary nature of the individuals involved in providing the service ranging from Slippery Rock University students to the Director and Assistant Director of Storm Harbor was discussed by each of the participants. They hold each party in high regards and truly value their time and commitment to

this program. This research question was most significant to the study and in showing the need for future research in the realm of parental input, viewpoints, and perceptions related to equine therapies.

Research Question Two: What is the effect of the equine-assisted therapy program on observable social changes based on parental input?

Themes that arose in the research in the area of observable social changes based on parental input were less impactful on the study. There was mention of possible social changes that have occurred due to EAT, however, no definitive responses were given pointing directly to EAT as the only responsible party for this phenomenon. Participant Sharon did note that she was unsure if it was due to the actual therapy sessions or her child showing signs of maturity, but she did notice social improvements. Links could not be found directly connecting the two for her personally. She went on to say that Robert "doesn't typically talk a lot, and gives very short answers, like a yes or no question," but after riding he is more willing to give more answers than typical for him. She reiterated, "Maturity versus horses - not sure if there is a link."

Debra explained that Michael will give a random word, then not say anything for months. She discovered through EAT that Michael is more willing to work with other people. She expressed that "he has only ever wanted me, so seeing an improvement in being able to work with other people" was an advantage that EAT offered. When asked if she could measure any improvements in social skills, she reiterated that working with people and following directions, along with being able to be away from her, were big improvements that she credits to this therapy. Specifics she added were that Michael is more willing to do things that he may not want to do, noting his tolerance across various settings is much better. "Michael verbalizes sounds, and as many sounds, as he makes, he gets annoyed with other children with autism that

make sounds, and I have noticed he is able to tolerate it more." Debra commented that he likes being around people but hates high-pitched sounds and crying, but she has witnessed improvement in this area. Linking it directly to EAT was not a certainty for her, but she explained that likely it played a role in his recent social development.

Ann commented that Kenneth has always been "social" and has "social skills" but does not have communication skills to any large degree. She went on to say that when it comes time to horseback riding, he will mouth with verbalizations, "H, H, H" and pat his leg, which is the sign for dog, but she thinks there is a correlation between him attempting to show his excitement for the therapy.

Although the study's intent was to determine links between observable social changes and equine-assisted therapies, no such results were accrued. Being able to affirmatively say that social improvements were made solely due to equine-assisted therapy was not possible. Additional participants and or quantitative measures may have led to results in favor of such social changes however, the narrative case study interviews did not lead the investigator to determine any such definitive correlation. Notions of social development advances and improvements were slight throughout questioning, but no ties were found between the receipt of service and the social outcomes.

Final Summary

The purpose of these narrative case study interviews was to investigate and understand the experiences of families who have a child attending equine-assisted therapy sessions at Storm Harbor Equestrian Center in Slippery Rock, Pennsylvania. Personal interviews and demographic information were collected to determine how the children have experienced this unique form of therapy through their parent's viewpoint. While many similarities existed among the

three participants, there were also clear differences that emerged from data collection and analysis. The investigation led to advancement in the field of equine-assisted therapies, no matter the size of the input, it should still be valued. Throughout the research, the investigator was able to link positive benefits to all aspects of the local program at Storm Harbor Equestrian Center in Slippery Rock, Pennsylvania. Through small studies such as this, one can determine the scope of additional needed research in the field. In Chapter Five, the findings of each research question will be reviewed, along with placing them in the context of previous research in the field. The specific contributions of this study to the field of special education, limitations of the study, conclusions, implications for practice, and further research will be discussed.

CHAPTER 5

Introduction

This chapter offers a summary of the study on parental viewpoints on equine-assisted therapies based on data presented in the previous chapter. It provides a clear overview of the study and its implications. Findings related to the literature on equine-assisted therapies are reviewed, as well as, unexpected findings that occurred during the data collection and retrieval of information in the present study. Furthermore, it concludes that future research is relative to continuing the implementation of equine-therapies for various groups.

The purpose of this study was to determine if positive social outcomes are observed in children with autism via parental viewpoint in relation to equine-assisted therapies. In order to judge parent opinion on EAT interventions, the narrative case study approach was used. Parents of children with ASD often seek unconventional therapies in order to lessen the symptoms since there is no cure. Autism is the leading neurological disorder, a recent CDC report indicates the prevalence to be 1 in 54 children are diagnosed with autism spectrum disorder (Roth, 2020). Autism spectrum disorder (ASD) represents a heterogeneous group of neurodevelopmental disorders characterized by persistent deficits in social communication and social interaction, and by restricted, repetitive patterns of behavior, interests, or activities (American Psychiatric Association, 2013). Autistic disorder, childhood disintegrative disorder, Asperger's disorder and pervasive developmental disorder – not otherwise specified (PDD-NOS) all fall under the merged autism umbrella. As stated by the most recent Diagnostic and Statistical Manual of Mental Disorders – Fifth Edition (DSM-5), Autism Spectrum Disorder includes Rett syndrome, selective mutism, language disorders, and social (pragmatic) communication disorder, intellectual disability, stereotypic movement disorder, attention-

deficit/hyperactivity disorder, and schizophrenia as differential diagnosis (American Psychiatric Association, 2013).

"Impairment in social interaction and behaviors are typically seen in ASD persons as they experience difficulty in starting interaction or communication with others, as well as shaping their appearance and behaviors properly into contexts" (Siriratraka, 2012). Social skills, communication, and language are often deficits shown in individuals diagnosed with ASD. "Deficits in social-emotional reciprocity may be most apparent in difficulties processing and responding to complex social cues (e.g., when and how to join a conversation, what not to say)" (DSM – 5, 2013, p. 53). Research has reported an increase in social interactions related to animal-assisted intervention (including horses; Grandinn, Fine, and Bowers, 2010; O'Haire 2013). Equine-assisted activities also provide sensory input, and research has shown that working with a horse (which is non-judgmental) can promote bonding and social connections in those with autism (Brown, 2019). Consistent with the advantages of the equine-assisted therapy program on learning, perception, cognition, behaviors, emotions, and social skills are aims to be applied to continued research in the field. The present research study's intent was to focus on individuals with ASD in order to show the effectiveness of equine-assisted interventions and any correlation between equine-assisted therapies and social outcomes in individuals with ASD.

Links to Special Education

This study was necessary to the field of special education to generate additional research in the growing and evolving field of equine-assisted therapies as an alternative therapy for individuals with ASD. As the global prevalence of autism being high, and the epidemiology not being truly defined, it is of utmost importance to study all avenues that may lead to additional

insight. This study may prove beneficial to individuals looking for additional forms of therapies besides the traditional medicinal or office-provided therapies. As study participants noted their own child's attendance, Occupational and Physical Therapies are the most widely known therapies for students with special needs, animal, music, and art therapies are also wonderful options (Dalien, 2021). Special Education services are constantly evolving to better serve the needs of individuals with disabilities. Animal therapy services are now a recognized therapy, which will allow for more children to receive such services. Equine-assisted therapies should be considered an option based on continuing studies and research findings.

It is well-known that therapy is essential for individuals with ASD however, narrowing down specific, evidence-based therapies has been a debatable factor. Many families with a child with autism will go to any length to help their child. "Given the number of non-evidence-based interventions currently marketed for the treatment of ASD (e.g., facilitated communication, holding therapy, secretin therapy), selecting efficacious interventions can be a challenging proposition for both parents and professionals alike" (Hawkins, et al., 2014). Since each case of ASD is individual and not like the other, it remains difficult for legitimate, evidence-based practices to be the only treatments used. According to findings by Berg and Causey (2014), demonstrated the efficacy of Equine-Assisted Activities and Therapies (EAAT) is essential for parents, guardians, and participants to know whether EAAT is beneficial and what evidence exists to support this type of monetary and personal investment. Many families feel that unique diets, therapies, and supplements are the only option in their crusade to find a miracle cure. Such rehabilitation, as equine-assisted activities and therapies, is unique and requires quality research to ensure that it becomes a viable therapeutic option for identified populations (Berg & Causey, 2014).

Clear data is present within the field of equine-assisted therapies and their use for individuals with ASD however, research is needed to determine if more widespread use of such therapy is advantageous to groups beyond those with ASD. On the contrary, there is much research in sensory integration and the positive effects of including such treatments. While equine-assisted therapy is not solely based on sensory integration, it does play a role in various therapy approaches, including riding or simply handling the animals. The overall purpose and significance of this project was to explore the current theories and framework related to equine-assisted therapies and to better understand the relationship that may exist between equine-assisted therapies and providing support for individuals with ASD. This link to Special Education may lend to parents and districts working together in the future to provide additional services, such as equine-assisted therapy, for children with disabilities.

Summary of Findings

Equine-assisted therapy is a modern approach to providing a therapeutic means other than the typical office setting or the medicinal avenue. Understanding the use of this therapy and supporting the need for such, ensures that individuals that may benefit will be able to receive it. By providing parental input and adding parent viewpoints and opinions of equine therapies to the research, it can be noted that proper decision-making can occur. The lack of parent input and decision-making on why this therapy is beneficial for children drove this study and provided the purpose for research. The study's main purpose was to determine, according to parent input, if EAT is beneficial in regards to social outcomes, and if noticeable social differences pre- or post-services were indicated through interviews. The research questions that were asked included: (1) What are the perceptions of the guardians regarding the benefits of their child participating in equine-assisted therapy programming? (2) What is the effect of the equine-assisted

therapy program on observable social changes based on parental input? The hypothesis of the study was that after four sessions of equine-assisted therapy, EAT participants would show improved social-emotional functioning and increased social awareness according to parental/guardian input.

Methodology

A narrative case-study approach was used in order to dig deeper into the perspective of parents of children who attended Storm Harbor Equestrian Center therapies. Face-to-face interviews with the participants took place during their child's therapy sessions. Oltmann (2016) notes, interviews are a staple method used in qualitative research. In the qualitative paradigm, interviews are often seen as one of the best ways to "enter into the other person's perspective" (Patton, 2002, p.341). This methodology was chosen in order to gain deep insight into the positive outcomes EAT can provide individuals with ASD. The case study approach was vital in obtaining extensive information with each participant, specifically linked to their opinion of this unconventional therapy. In order to truly understand each family and the needs of their child, by whom rapport was built and achieved through these one-on-one interviews. The methods were purposeful in the retrieval of information linked to equine-assisted therapy benefits, even if they were based on parental input. The case study method for this dissertation was qualitative by employing interviews. Qualitative research can be invaluable to understanding real-life experiences and provides insights into perspectives of a theme. "Qualitative researchers are interested in understanding how people interpret their experiences, how they construct their worlds, and what meaning they attribute to their experiences" (Merriam, 2009, p. 5).

Misconceptions of Case Study Methods

Several misconceptions have accumulated in regard to case study research. “Although much of what we know about the empirical world is drawn from case studies and case studies continue to constitute a large portion of work generated by the discipline, the case study method is held in low regard or is simply ignored” (Gerring, 2004).

First, many believe that case studies can only provide exploratory or descriptive evidence. Paparini et al. (2020) note that “case study research has been marginalized at the bottom of an evidence hierarchy, seen to offer little by way of explanatory power, if nonetheless useful for adding descriptive data on the process or providing useful illustrations for policymakers.” The lack of ability to generalize from a single case is viewed as a downfall to case-study research. Social science research is regarded as generalizable however, case studies are often thought of as not generally applicable.

Secondly, the definition of a ‘case study’ is different in various disciplines. This provides a rich, diverse approach, with one not fully being consented in the different fields. Gerring (2004) discusses the profusion of meanings, proponents, and opponents of the case study marshal a wide range of arguments. Due to the typical focus on an in-depth study of a subject, identifying key messages may be difficult related to the evaluation of an intervention.

While many misconceptions exist in connection to case study methods, one must also understand the need for such in empirical studies. Thus, the need for this methodology to be the chosen type for the present study in order to lead to a greater in-depth understanding of equine-therapy benefits. Misconceptions may exist around equine therapies, themselves, due to the lack of proven research in the field; hence the need for continued strives in the field of research regardless of what method.

Synopsis of Major Findings

The findings of the present study support previous research investigating parental viewpoints of equine-assisted therapies and their benefit. The study offers evidence that based on parental input and opinion of EAT programming, social improvements, as slight as they may be, can occur for children with ASD after at least four sessions. This is especially salient in regards to future programming options and opportunities within the field. The evidence of positive shown benefits after treatment is supported by several studies that have concluded similar findings. A most recent similar study, Lovrić, Farčić, Mikšić & Gvozdanović Debeljak (2020), found links to parental input and opinion of equine-assisted therapies, in which study findings are in agreement with the present study. In this study, Lovrić et. al. found only positive indications of change in the children according to parents, and most parents credit the therapeutic horseback riding as "noticeable improvements in their child's quality of life" (2020). The present study proved to find direct parallels to providing further appeal in the realm of this therapy and plea for future support of said programming in attempting to answer the two research questions, (1) What are the perceptions of the parents/guardians regarding the benefits of the equine-assisted therapy program? (2) What is the effect of the equine-assisted therapy program on observable social changes based on parental input?

Major findings in this study link overall positive regards for equine-assisted therapy as an option for children with disabilities. All three participants stated without hesitation that they would recommend equine-assisted therapy, specifically Storm Harbor Equestrian Center, to any parent or family considering this form of therapy for their child. Another notable finding was the observation by the parents of the improved muscle control when their child was riding. All

three participants noted a lack of muscle tone, yet when riding, their child is able to sit up straight and hold that position throughout the session.

Limitations of Study

This research yielded results supporting the benefits of EAT, however, there are also clear limitations of the study. Certain limiting factors influenced the scope of the study. The most notable limitation is the small sample size (N=3.) As the intent was to keep the research as non-intrusive as possible and aimed to measure existing practice, the study was bound by the natural group size within the existing groups at Storm Harbor. All attendees did not meet the study criteria of having a child age 5-18 participating, or diagnosed with autism. Furthermore, the inclusion of the small sample size was intentional in nature. Gaining insight into the three participants' experiences, at a personal level, was important to the investigator. Another potential criticism of the study could be the caregiver bias. Parental input could be swayed based on emotions and opinions, versus actual occurring phenomena. Findings in the present study are also limited to the demographics of the participants. Three participants identified as Caucasian, which may cause concern about the findings and ability to generalize.

Findings Related to the Literature

Overall, the results of this study align with the literature regarding parental viewpoints on equine-assisted therapies and the importance of such. First, the findings in this study provide parents of a child with ASD the option of equine-assisted therapies based on proven beneficial findings. The research reveals that equine-assisted therapies are a favorable form of not only therapy but also a valuable extracurricular activity for children with autism that may not be able to participate in typical team sports or other hobbies.

Unexpected Findings

While the findings of this study are in agreement with the existing literature, there were some minor unexpected discoveries. Overall, the findings were all positive in nature for programming, but of the participants used in this study, no direct correlation was found between improved social skills and the therapy itself. In the initial phases of research, there was an overwhelming amount of social skills correlations to equine therapies, which was not present in the current study. This was unexpected as the researcher thought it would be mentioned as a key finding and theme throughout the interviews.

Another unanticipated finding was the unawareness of funding available to participants of the program to help support their attendance in weekly lessons. During post-interview discussions, as families were watching the therapy session, they began talking about funding that was received for two of the three children, allowing the third family to look into options for financial support to continue weekly lessons. Any family experiencing financial restraints can request support in order for the child to continue therapy.

Implications for Practice

This research reveals that equine-assisted therapy is indeed tied to positive outcomes for individuals with ASD. Although Research Question #1 (What are the perceptions of the parents/guardians regarding the benefits of the equine-assisted therapy program?) was overwhelmingly linked and found to be positive; Research Question #2 (What is the effect of the equine-assisted therapy program on observable social changes based on parental input?) was not as notable in the findings across the three participants. It is possible that through a quantitative study more implications would be able to link social benefits to equine-assisted therapy. Through narrative interviews, the families could not prove or provide specific links.

Recommendations for Future Research

There are a number of potential areas for future research suggested by the reported results. First, replication studies could be conducted at additional equestrian centers to strengthen the external validity of the findings. By replicating the study, more generalizable results could be obtained from more respondents. Helping to refute or strengthen the present study's findings will allow for validity. Any contribution to the literature in regard to the parental viewpoint of EAT is a benefit to the field since that perspective was lacking.

Secondly, future research should consider comparison groups for the present study. These might include therapy provider input versus parent input. Comparison groups would also strengthen the findings and help provide clarification on whether the results are unique to Storm Harbor Equestrian Center, or are true across multiple studies. This study attempted to increase understanding about EAT and the likelihood of improvements upon delivery of service to children with disabilities, specifically ASD. Previous to this study, there was a general lack of parental viewpoint studies on this topic. Using comparative studies to include additional parental viewpoints is of the utmost importance to the field and continued parental support for the program.

Another area for future research, which has been conducted, should include observations of interactions between child and horse-practitioners could also be beneficial to investigate further aspects of effective promotion of improved social functioning. The social functioning aspect of EAT should be found in greater links to the field. Additional studies in the discipline should be conducted on a larger scale to determine if EAT is a viable therapeutic avenue for not only children but also adults with autism. Since the present study took place in a small, Western Pennsylvania equestrian center, future researchers should conduct replication studies in

similar and different stables in respect to size, geographic location, and medical diagnosis, and/or age of child. Replicating the study with different variables will help strengthen the current findings and provide confirming or refuting evidence and strengthen the overall field.

Concluding Remarks

Chapter Five presented a discussion of findings from a qualitative case study of three parents of children who attend equine-assisted therapy sessions at a small rural stable in Western Pennsylvania. The current study is significant for many reasons. The study provides meaningful insight into the benefits of equine-assisted therapies, specifically for children with ASD. Parents of children with autism are continually looking for the latest trend or newest fad in relation to lessening symptoms, and equine-assisted therapy has been proven to provide some relief, even if it is for a short period of time after, or only during riding. This was clearly evident in each interview, and positive remarks were plentiful concerning the benefits of equine-therapies, specifically at Storm Harbor Equestrian Center. Equine therapies will hopefully continue to grow into a service option for those who are willing to participate, in addition to, funding for such programs becoming more readily available for families. One should note that through continued studies, no matter the size, information can be gained to build a repertoire of information in favor of equine-assisted therapies. The results of this study suggest that a key message from parents or guardians is that equine-assisted therapy is a viable option for therapy to children with autism. Addressing the need for such programming and emphasizing that children with disabilities can be greatly influenced by successes found during these therapy sessions. As more information is found beneficial and in favor of such therapy, one would expect the funding and interest to be plentiful as well. Sufficient data and positive buy-in are both observable at Storm Harbor Equestrian Center on the campus of Slippery Rock University in Pennsylvania.

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Appendix A
Initial Interview Protocol

Initial Interview Protocol

1. Can you explain any pertinent background on (child's name) disability that you feel would benefit this study? (i.e. formal diagnosis, age of onset, doctor, medical/educational/family history, challenges)
2. Are there other forms of therapy that your child has participated in previous or concurrent to EAT?
3. What is the reasoning behind choosing equestrian therapy? Were there alternative therapies you considered?
4. How long have you been attending Storm Harbor?
5. Would you describe a few of the reasons you decided to enroll in these sessions?
6. What changes, if any, would you like to see made to the programming?
7. What was the most obvious advantage you felt EAT offered?
8. Were there any other advantages you discovered after participating regularly?
9. Do you have any previous links to horses?
10. By attending EAT sessions, can you measure any improvements in social skills?
11. Can you specifically name any improved social skills that are carried over outside of therapy?
12. Do any socialization activities occur as a result of therapy? Relationships formed through EAT?
13. Is there a significantly noticeable difference in pre vs. post therapy sessions? If so, in what regard?
14. Are there any differences in demeanor during therapy sessions?
15. What is (child's) favorite part of EAT? Least favorite?
16. What is your advice to others who might be considering enrolling in Storm Harbor therapies?
17. Is there any additional information you would like to add in regards to this study?

Appendix B
Citi Training Certificates

CITI PROGRAM

Completion Date 29-Jun-2020
Expiration Date 29-Jun-2023
Record ID 37246835

This is to certify that:

Trisha Huston

Has completed the following CITI Program course:

Not valid for renewal of certification through CME. Do not use for TransCelerate mutual recognition (see Completion Report).

Revised Common Rule (Curriculum Group)
Revised Common Rule (Course Learner Group)
1 - Basic Course (Stage)

Under requirements set by:

Slippery Rock University

CITI
Collaborative Institutional Training Initiative

Verify at www.citiprogram.org/verify/?w0b0e6a2a-e7db-448c-90bf-4bc8450e3c8c-37246835

CITI PROGRAM

Completion Date 29-Jun-2020
Expiration Date 29-Jun-2022
Record ID 37246833

This is to certify that:

Trisha Huston

Has completed the following CITI Program course:

Not valid for renewal of certification through CME. Do not use for TransCelerate mutual recognition (see Completion Report).

Human Subjects Research (Curriculum Group)
Students Conducting No More than Minimal Risk Research (Course Learner Group)
1 - Basic Course (Stage)

Under requirements set by:

Slippery Rock University

CITI
Collaborative Institutional Training Initiative

Verify at www.citiprogram.org/verify/?w18a0f1f3-cb8b-4804-84d9-ed67ca47f055-37246833

CITI PROGRAM

Completion Date 29-Jun-2020
Expiration Date 29-Jun-2023
Record ID 37245353

This is to certify that:

Trisha Huston

Has completed the following CITI Program course:

Not valid for renewal of certification through CME. Do not use for TransCelerate mutual recognition (see Completion Report).

Institutional Official: Animal Care and Use (Curriculum Group)
Institutional Official: Animal Care and Use (Course Learner Group)
1 - Animal Care and Use (Stage)

Under requirements set by:

Slippery Rock University

CITI
Collaborative Institutional Training Initiative

Verify at www.citiprogram.org/verify/?w74602f29-a4d8-420a-b6ec-18fd7d90b9fb-37245353