"My Dog is in Teletherapy with Me": The Impact of a Pet Dog on their Owner's

Teletherapy Session

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Department of Community Care and Counseling, Liberty University

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

Doctor of Education

School of Behavioral Sciences

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Abstract

The connection between humans and animals has led to practices such as animal-assisted therapy, equine therapy, service animals, and pet ownership. Strong bonds and attachments can form between pet owners and their pets. It is no wonder that owning a pet is commonplace in the United States. Many pet owners identify their pet as a member of their family. In addition to companionship, research has indicated that pet ownership can have health benefits, reduce stress, increase empathy, and facilitate openness. In a therapeutic setting, the presence of a pet may comfort its owner simply by being near them. The ease of including a pet in a therapy session has improved with technology and teletherapy sessions. Recently, psychotherapy delivery has changed for clients and therapists to include a more accepted use of teletherapy sessions. The increase in teletherapy use may become commonplace, but some people are uncomfortable with online therapy. Finding a way to help clients reduce their stress and increase their openness in session may be accomplished by a trusted companion accompanying them in their session. While the companion could be human, it was the owner's dog in this research. This single case experimental designed study examines a dog owner's teletherapy experience with and without their dog in session with them.

Keywords: teletherapy, dog ownership, stress, openness, pets, intervention

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Animal-Assisted Activities (AAA)

Animal-Assisted Education (AAE)

Animal-Assisted Intervention International (AAII)

Animal-Assisted Interventions (AAI)

Animal-Assisted Therapy (AAT)

Animal-Informed Therapy (AIT)

Americans with Disabilities Act (ADA)

Attention-Deficit/Hyperactivity Disorder (ADHD)

Coronavirus Disease 2019 (COVID-19)

Diagnostic and Statistical Manual of Mental Health Disorders, Fifth Edition (DSM-5)

Dolphin-Assisted Therapy (DAT)

Emotional Support Animal (ESA)

Electronic Health Records (EHR)

Equine-Facilitated Psychotherapy (EFP)

General Anxiety Disorder (GAD)

Human-Animal Bond (HAB)

Human-Animal Interaction (HAI)

Health Insurance Portability and Accountability Act (HIPAA)

Lexington Attachment Pet Scale (LAPS)

Licensed Marriage and Family Therapist (LMFT)

Patient Health Questionnaire (PHQ)

Percent of Nonoverlapping Data (PND)

Percent of Data Exceeding the Median (PEM)

Single Case (SC)

Single Case Experimental Design (SCED)

Subjective Units of Disturbance (SUD)

Visual Analogue Scale (VAS)

Chapter One: Introduction

Overview

The framework for this study will be explained in Chapter One, including historical, social, and theoretical elements backed by relevant literature. The problem statement will reveal the gap in the literature while underscoring the necessity of this study. Specific research questions and definitions will further clarify the research purpose. A concise summary will close out Chapter One. In Chapter Two, related literature will be explored in greater detail.

Background

As the world was trying to figure out what to do next and adjust to the Coronavirus Disease 2019 (COVID-19) pandemic, people changed how they interacted with others, conducted business, and communicated (Burgoyne & Cohn, 2020). In general, people began staying home due to pandemic-related concerns and uncertainty. The importance of technology became paramount, and people started using technology more frequently to connect with their co-workers, doctors, professors, family, friends, and others. Changes also applied to the delivery of psychotherapy sessions (Zeavin, 2021). The practice of face-to-face therapy decreased as therapists shifted to teletherapy to continue providing much-needed therapy services and continuity of care during stay-at-home mandates (Connolly et al., 2022; U.S. Department of Health and Human Services, 2022).

During the pandemic, staying at home meant people that lived together were in contact with each other for extended periods, possibly 24 hours a day. For people who lived alone or were separated from their family, staying at home meant they were alone and isolated from in-person contact. However, if a pet was with them, even those living alone were not truly alone (Compitus, 2021). A pet can provide companionship and comfort to its owner. Pets are

sometimes referred to as a member of the family (Charles, 2014). The benefits of pet ownership seemed ideal to help people cope with the stress and uncertainty during the pandemic (Compitus, 2021).

Animals

Since the earliest times, animals have been integral to the human experience (Levinson & Mallon, 1997). The connection between people and the animal world has been well documented over the years, from depicting animals in early cave drawings to the representations of animals in literature, artwork, and research (Knight & Herzog, 2009; Levinson & Mallon, 1997). As civilization changed, so did human interactions with nature. People began leaving the wilderness and creating manufactured environments. They also brought animals with them to their domesticated lifestyle. Although the domestication of animals was initially for food and work purposes, animal companionship was comforting and desirable (Fine, 2019; Knight & Herzog, 2009).

The connection between animals and humans has always had a therapeutic element, but in different ways throughout time. Historically, animals were believed to have mystical, spiritual, and healing powers (Serpell, 2019). This perception of animals began to shift just before the 18th century; animals became more approachable and desirable as pets. During the 18th and 19th centuries, interest in pets grew, including interest in the therapeutic benefits animals provide people. Although the human-animal bond (HAB) was not identified until the 20th century, the connection between humans and animals was apparent in animal-assisted care facilities, mental health institutions, and pet owners (Johnson & Bruneau, 2019; Fine & Beck, 2019). Surprisingly, the attention to the therapeutic use of animals practically disappeared in the early 1900s. Even though animal therapy was not in vogue, people continued interacting with animals. The

therapeutic benefits of animals were revisited later in the 20th century (Levinson & Mallon, 1997;

Chandler, 2011). Over time, animals were incorporated into therapeutic work, including Animal

Assisted Therapy (AAT), Animal Assisted Activities (AAA), Animal Assisted Education (AAE),

Animal Assisted Interventions (AAI), Emotional Support Animals (ESA), and service animals

(U.S. Department of Justice, 2011; Fine et al., 2019b; Von Bergen, 2015).

Animals have increasingly become more integrated into the lives of humans as

companions. Over the last twenty years, the percentage of households with pets has increased by

14% in the United States (Statista, 2021). There is little wonder why pet ownership is rising.

Animals can provide company, comfort, and security to the pet owner. Research has associated

pets with pet owner health benefits (Wheeler & Faulkner, 2015; Chandler et al., 2015; Ma et al.,

2020). Specifically, pet owner stress level has negatively correlated to pet ownership (Sane &

Sawarkar, 2017). Pets are included in the potential benefits of the human-animal relationship.

Just like humans, animals can be comforted by the association. The bond between pets and pet

owners has the potential to develop into a meaningful attachment (Fine, 2019; Charles, 2014).

Sometimes, a person's relationship with their pet is closer than familial relationships or

friendships.

The comfort of a companion animal has been shown to offset the impact of stress, social

isolation, and loneliness which is common during challenging times (Compitus, 2021). Stress

and emotional struggles are anticipated when disease outbreaks or other catastrophic events

strike (Vahratian et al., 2021; Shultz et al., 2015). Loneliness, uncertainty, and worry were some

of the struggles people experienced during the Coronavirus Disease 2019 (COVID-19)

pandemic. (Compitus, 2021; McConnell et al., 201; Sammer, 2021). These challenges

contributed to increased pet ownership as people chose to add pets to their homes. An increase in

pet ownership should be expected, considering the wealth of research showing the benefits of owning a pet (Sane & Sawarkar, 2017; Chandler et al., 2015; McConnell et al., 2011; Chadwin, 2017).

Teletherapy

Teletherapy is a delivery tool for psychotherapy and is generically referred to as telehealth. Telehealth can be traced back to the 1950s when telehealth visits were delivered via two-way television, and telemedicine was first discussed (Frehse,2021; Wittson & Benschotter, 1972). Even in its infancy, the benefits of telehealth extended beyond healthcare uses to applications in education, consultations, and group therapy. Telehealth allowed patients, doctors, students, and professors to connect in real-time, synchronously, even though they were not in the same location. Continued interest in telehealth, along with the technological advances in the 1990s, led to advancements and variety in the delivery of telehealth (Frehse, 2021).

Out of necessity, teletherapy increased significantly during the COVID-19 pandemic (Cantor et al., 2021; Burgoyne & Cohn, 2020). Many face-to-face mental health providers converted partially or totally to teletherapy to maintain their therapy practice and continue client care during the pandemic (Burgoyne & Cohn, 2020; Lin, Heckman & Anderson, 2021). Although teletherapy was not new to outpatient mental health providers, most providers did not use this method before the COVID-19 pandemic (Wolson, 2021; Cantor et al., 2021; Lin, Heckman & Anderson, 2021). As therapy practices shifted to teletherapy, telehealth resources and policies already in place were accessible to assist practitioners new to remote therapy (Barker & Barker, 2021). Recent research indicates teletherapy availability and its use nearly doubled during the COVID-19 pandemic compared to pre-pandemic numbers (Pierce et al.,

2021; Cantor et al., 2021; Lin, Heckman & Anderson, 2021). Teletherapy use continued to thrive in 2022 and appears to be here to stay (Frehse, 2021; Connolly et al., 2022).

Summary

The COVID-19 pandemic brought changes to people's lifestyles. One change was the increase in pet ownership (Compitus, 2021). Prior studies have shown the benefits of pet ownership, including lowering blood pressure, reducing stress, and providing comfort (Sane & Sawarkar, 2017; Chandler et al., 2015; McConnell et al., 2011; Chadwin, 2017). A supportive companion is desirable in general, even more so during a crisis such as a pandemic. The connection between a pet and its owner has been compared to being part of a family. Having a companion animal is how some people can cope with their circumstances, and this may have been the case during the pandemic as society shifted their way of living.

Another lifestyle change experienced by many people during the COVID-19 pandemic was how goods and services were delivered. In particular, teletherapy services increased as many face-to-face providers moved partially or totally to remote mental health services (Burgoyne & Cohn, 2020; Lin, Heckman & Anderson, 2021). Continuing to provide mental health services was crucial, and providers attempted to meet the needs of current and new mental health clients, with some research finding that teletherapy doubled during the pandemic compared to pre-pandemic (Pierce et al., 2021; Cantor et al., 2021; Lin, Heckman & Anderson, 2021). The technological advances in teletherapy have made it more convenient, accessible, and practical than the closed-circuit television telehealth applications of the 1950s (Frehse,2021; Wittson & Benschotter, 1972).

Problem Statement

Although teletherapy is not a new delivery method for health care, teletherapy was unfamiliar to many practitioners and clients before the COVID-19 pandemic (Wolson, 2021). Some providers and clients were uncomfortable with teletherapy and had fears and concerns about remote sessions (Zeavin, 2021). These challenges presented opportunities for innovation and advancement in service delivery as teletherapy use increased. One such opportunity is investigating the influence of animal-assisted intervention (AAI) on teletherapy sessions. The well-documented benefits of AAI and pet ownership support the basis of this research (Chandler et al., 2015). A pet being included in its owner's teletherapy session may provide results similar to those shown in previous human-animal interaction (HAI) and AAI research (Chandler et al., 2015; Levinson & Mellon, 1997; Pendry & Vandagriff, 2019; Sane & Sawarkar, 2017).

If a person has owned a pet, they likely realize some of the benefits of a companion animal, and research supports pet ownership benefits (Sane & Sawarkar, 2017; Chandler et al., 2015; McConnell et al., 2011; Chadwin, 2017). Pet ownership continues to increase (Statista, 2021; Compitus, 2021), and when looking around the community, pet owners are often seen with their pets. Similarly, teletherapy use is increasing, and ample research has indicated that the effectiveness of teletherapy is comparable to face-to-face therapy (Yuen et al., 2015; Atzl et al., 2020; Khan et al., 2021). Individually pet ownership and teletherapy use are experiencing growth. The problem is the need for more research combining pet ownership and teletherapy. This study focuses on teletherapy and pet ownership by comparing a pet owner's teletherapy experience when they have a session alone with a therapist and when they have their pet in the session.

Purpose Statement

The purpose of this single-case experimental study is to understand the impact a pet dog has on its owner's teletherapy session. The levels of stress and degree of openness the pet owner experiences related to their teletherapy sessions when they attend alone will be compared to when the owner's pet dog is alongside them in the session. Previous research has indicated that a pet can reduce a pet owner's stress and anxiety (Fine, 2019b; Sane & Sawarkar, 2017). This study will explore how a pet dog influences its owner's teletherapy experience.

The emotional connection or relationship between a pet and a pet owner can form an attachment. Just as the attachment between people is influenced by how they think and feel about each other, this can also be the case between pet owners and their pets. In previous research, the connection between a companion animal and its owner has been shown to provide comfort, support, and a non-judgmental outlet for pet owners (Wheeler & Faulkner, 2015; Chandler et al., 2015; Ma et al., 2020).

Before the first phase of this study, the participant's attachment to their pet will be measured using the Lexington Attachment to Pets Scale (LAPS) (Johnson et al., 1992). This measure will provide information about the relationship between the participant and their pet dog. The independent variable in this study is the pet dog. The dependent variables are the participating pet owner's stress and openness, measured by a separate Visual Analogue Scale (VAS) for each (Lesage et al., 2012). Multiple measurements using VAS for stress and VAS for openness will be made throughout the phases of the research. The study will have phases with only the pet owner in session and phases with the pet owner and their pet dog in session together.

Significance of the Study

Animals can be an asset to humankind, especially to pet owners. Previous research has shown a connection between animals and their health benefits to humans (Jones et al., 2018; Flynn et al., 2020). Additionally, the literature endorses the social, physical, and mental health benefits of owning a pet (McConnell et al., 2011). This study will explore the impact of a pet attending its owner's counseling session, specifically teletherapy sessions. The connection between humans and animals, along with the increase in teletherapy use, supports the significance and necessity of this research.

The timeliness of this study also contributes to its relevance. Teletherapy use by therapists and clients has increased (U.S. Department of Health and Human Services, 2022). Due to factors related to the COVID-19 pandemic, teletherapy has been brought to the forefront as a therapy delivery option (Burgoyne & Cohn, 2020; Barker & Barker, 2021). Since teletherapy continues to become an acceptable mode of therapy, adapting and learning ways to improve this practice is prudent. Identifying and utilizing interventions that reduce clients' stress and increase their openness in teletherapy sessions can help enhance their experience and overall outcomes. This study will explore how a client's teletherapy experience is impacted by including their pet in session, seeking to gain insight into this combination. The gap in the literature, the researcher's interest in pets and teletherapy, and the needed contribution this area of practice will provide to psychology and counseling are the motivating factors in conducting this study.

Research Questions

RQ1: Does a pet owner's openness during their teletherapy session increase when their pet dog is in session with them?

RQ2: Can the accompaniment of their pet dog reduce a pet owner's stress during a teletherapy session?

RQ3: Does a pet owner's attachment to their pet dog increase after their pet dog is in a teletherapy session with them?

Definitions

1. *Animal-Assisted Activities* - An informal yet purposeful interaction by a human and animal team providing participants education, support, and encouragement (Fine et al., 2019b).

2. *Animal-Assisted Education* - An intervention facilitated by an education professional or other qualified provider promoting animal education may include therapeutic components (Fine et al., 2019b).

3. *Animal-Assisted Intervention* - The overarching category of interventions for individuals or groups, including animals, such as animal-assisted activities, animal-assisted education, and animal-assisted therapy (Fine et al., 2019b).

4. *Animal-Assisted Therapy* - A therapeutic intervention that includes an animal in a person's therapy treatment and is delivered by a professional whose practice consists of both therapeutic practices and the inclusion of animals in therapy (Fine et al., 2019b).

5. *Animal-Informed Therapy* – A therapeutic intervention delivered by a professional that includes a pet in their owner's therapy treatment instead of an outside animal or professional therapy animal (Moga, 2019).

6. *Anxiety* - The presence of thoughts or feelings that can be worrisome, fear-provoking, and overwhelming; they can vary from manageable to significantly interfering with a person's daily living (Tan, 2011).

7. *Attachment* - The emotional connection a person has with another person, place, or thing (Seligman & Reichenberg, 2014).

8. *Companion Animal* - A domesticated animal, also known as a pet, that has a relationship and connection with a human that can be as strong or stronger than the connection with a family member (Fine, 2019, Charles, 2014).

9. *Emotional Support Animal* - An animal that has not been trained to provide specific service to assist its owner but comforts, relieves emotional stress and provides its owner with companionship (Von Bergen, 2015).

10. *Equine-facilitated Psychotherapy* – The experiences and relationships between a therapy horse, a client, and a practitioner are the basis of this experiential therapeutic practice (Karol, 2007).

11. *Face-to-face Therapy* - Psychotherapy provided by a therapist in person with one or more persons present in the session (Tan, 2011).

12. *Generalized Anxiety Disorder (GAD)* - A clinical anxiety disorder diagnosis listed in the *Diagnostic and Statistical Manual of Mental Health Disorders, Fifth Edition* (DSM-5) diagnosed when criteria are present, such as worry and anxiousness that is not manageable and causing significant interference to a person's daily functioning (American Psychiatric Association, 2013).

13. *Human-Animal Bond (HAB)* - A physical, emotional, and psychological connection between humans and animals with benefits to both (Fine, 2019; Friedmann, 2019; Jones et al., 2018).

14. *Human-Animal Interaction (HAI)* - The relationships and interactions between humans and animals (Fine et al., 2019b; Jones et al., 2018).

15. *Openness* - The degree to which an individual opens up to a therapist through verbal,

     emotional, and internal engagement in their psychotherapy session (Kleiven et al., 2020).

16. *Pet* - A domesticated animal that is cared for by a human for enjoyment and

     companionship (Fine & Beck, 2019).

17. *Psychotherapist* - A master's or doctorate level clinician who provides therapeutic

     psychological services to assist clients with relationships and navigating life's problems

     (Tan, 2011).

18. *Psychotherapy* - A clinically based interaction between a therapist and client designed to

     help clients understand and manage their thoughts, feelings, and actions (Tan, 2011).

19. *Service Animal* - A dog or, under certain circumstances, a miniature horse trained to

     assist a person with a disability by performing a specific task to lessen the impact of the

     disability (U.S. Department of Justice, 2011).

20. *Stress* - The emotional and physical responses to a perceived threat based on the

     individual's cognitive appraisal of the stimuli (Lazarus & Folkman, 1984).

21. *Teletherapy* - Psychotherapy or counseling provided through technology, such as

     videoconferencing or telephonic methods (Tan, 2011).

Summary

A pet has therapeutic value, but research has overlooked pets as adjuncts in their owner's teletherapy session. The COVID-19 pandemic drew attention to teletherapy and pet ownership, both demonstrating growth during the pandemic (Aafjes-van Doorn, 2022; Compitus, 2021). Research has shown that pets can benefit their owner's well-being, including comfort, reduced heart rate, and decreased stress (Wheeler & Faulkner, 2015; Chandler et al., 2015; Ma et al., 2020). If a client can feel more comfortable with their pet present in their teletherapy session,

there is a therapeutic value to their pet attending the session (Barker & Barker, 2021). Since teletherapy has become an acceptable method of service delivery, finding ways to improve its effectiveness benefits clients and therapists. This research aims to understand the effect of a pet dog on its owner's teletherapy session.

Chapter Two: Literature Review

Overview

The contents of this chapter will include the theoretical framework and an in-depth review of the literature pertinent to this study. Teletherapy, animal use in therapy, and pet owners will be the principal foci of the literature review. This study will investigate the impact of a client and their pet attending teletherapy sessions together. The necessity of this study will be established by exploring the related literature and identifying a gap in the research. After extensively exploring related literature, Chapter Two will conclude with a summarization of its contents.

Theoretical Framework

The theoretical framework for this study provided a basis to understand participant openness and stress level by comparing differences in teletherapy sessions with their pet dog present to sessions alone. The first framework applied to this research is the Attachment Theory developed by Bowlby and Ainsworth with some influence from Freud's Instinct Theory (Bowlby, 1982; Bretherton, 1992). The attachment between humans and animals ties into a second framework applied to this research, the human-animal bond (HAB).

Attachment Theory

Attachments are part of survival as people adapt to their environment in an effort to form emotional connections. The Attachment Theory was applied to this study by having participants complete a pet attachment self-measure, the Lexington Attachment to Pets Scale (LAPS), to determine their degree of attachment to their pet dog (Johnson et al., 1992). Research on attachment is abundant, including, but not limited to, bonding, infant attachment, childhood attachment, and attachment types (Charteris & Page, 2021; Maniglio, 2012; Brown et al., 2019;

Zeanah et al., 2011). There is also a substantial amount of research on human attachment to animals (Melfi et al., 2021; Meehan et al., 2017; Hawkins et al., 2017; Vanegas-Farfano & González-Ramírez, 2016).

Human-Animal Bond

The interactions between people and animals are age-old and continue today (Levinson & Mallon, 1997; Knight & Herzog, 2009). There has always been a therapeutic component to the human and animal relationship. Although civilization has changed over time, the domestication of animals allowed nature to be more accessible to people on a personal level (Fine, 2019; Knight & Herzog, 2009). The companionship of animals provides comfort and is desirable for many people. Animals have also been connected to mysticism, spirituality, and healing (Serpell, 2019). Regardless of the beliefs about faunas, the increased interest in animals as pets began in the late 17th century and continues at present (Statista, 2021; Serpell, 2019). People also began to be interested in the therapeutic benefits of pet ownership. The human-animal bond (HAB) was identified and given its name in the 20th century, even though interest in the therapeutic use of animals almost disappeared at the turn of the 20th century (Johnson & Bruneau, 2019; Fine & Beck, 2019; Stewart et al., 2022).

Humans can develop relationships with each other but may also establish relationships with animals (Chandler, 2019; Fine & Beck, 2019; Charles, 2014). The relationship between a person and an animal, especially a pet, may be stronger than the person's relationship with humans. The pet is sometimes referred to as a family member, emphasizing the strength and importance of companionship and HAB (Charles, 2014; Fine, 2019). As with any relationship, challenges may occur in the HAB, such as dependency on the pet for emotional support and the owner isolating themselves from others (Fine & Beck, 2019; Payne et al., 2015). Recognizing

that different types of bonds may exist between animals and humans is helpful to understanding the dynamics of pet and pet owner relationships.

Summary

Animals have been a vital part of the human experience since ancient times (Levinson & Mallon, 1997; Knight & Herzog, 2009). As the domestication of animals developed and pet ownership increased, so did the interest in the benefits of animal companionship (Fine, 2019; Knight & Herzog, 2009). Pet ownership has been shown to have benefits beyond companionship. Studies have indicated that there can be health benefits connected to owning a pet (Wheeler & Faulkner, 2015; Chandler et al., 2015; Payne et al., 2015; Ma et al., 2020; Fine, 2019; Sane & Sawarkar, 2017).

There is ample research linking pet ownership to physical, physiological, and emotional benefits for the pet owner and the pet. Just as a pet owner can be comforted by their pet, the pet can experience the same from its owner (Johnson & Bruneau, 2019; Wheeler & Faulkner, 2015; Chandler et al., 2015; Payne et al., 2015; Ma et al., 2020; Fine, 2019; Sane & Sawarkar, 2017). There are potential benefits for pets, too. A meaningful attachment can be formed through the bond between pets and their owners (Fine, 2019; Johnson et al., 1992). The theoretical frameworks of attachment and HAB are significant social and relational aspects of pet ownership, underpinning their application to this research.

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Related Literature

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Psychotherapy

Psychotherapy is a clinically based interaction between a therapist and client designed to help clients understand and manage their thoughts, feelings, and actions (Tan, 2011). Research has found that most people find psychotherapy helpful and effective (Seligman, 1995; Clement,

2013). Various modalities and interventions are available to therapists, with many opting for an

eclectic approach. Psychotherapy can be delivered face-to-face or via teletherapy (Burgoyne &

Cohn, 2020; Lin, Heckman & Anderson, 2021). In this study, the independent variable, or

intervention, was the participant's pet dog being included in their teletherapy session. The effects

of the participant's pet were based on their self-measured stress level and degree of openness

during their therapy sessions. Finding effective interventions depends on recognizing which

interventions suit individual clients and applying that approach (Hartwig & Smelser, 2018; Tan,

2011; Seligman, 1995).

According to the three-phase model, each phase of psychotherapy treatment has an

outcome pattern. (Rubel et al., 2015; Howard et al.,1993; Horowitz, 2018; Rivera, 1992).

Generally, subjective well-being increases in the first phase, then distressing symptoms decrease

in the second phase, and overall life functioning improves in phase three. If a therapeutic

relationship had already been established between a therapist and participant, the familiarity

would likely draw different results than a participant meeting the therapist for the first time

(Cocklin et al., 2017; Hill, 2005). Since the participants could feel more comfortable and open

with a familiar therapist due to their history, some of their symptomologies might already be

subsided. The participants in this study were unfamiliar with the therapist to establish a clear

starting point for the therapeutic relationship.

Clients and therapists begin forming their initial impressions of each other at first contact

(Hill, 2005). These impressions can influence the therapeutic relationship and potentially create

conflicting thoughts for the client to be explored in therapy. Opening up in therapy may be

challenging for clients, especially in the early phase of treatment, before the therapeutic alliance

has been established (Kleiven et al., 2020). The early stage is when the client and the therapist

get to know each other within the professional and therapeutic boundaries of the client-therapist relationship. This study chose participants with no prior contact with the therapist. The initial impressions between the therapist and participants had not been established.

Although the foundation of a therapeutic relationship starts with the first contact between the therapist and client, a client's perception of their therapy is subjective and can change throughout treatment (Cocklin et al., 2017; Hill, 2005). The early phase of psychotherapy typically includes facilitating client exploration, building rapport, and understanding the client's perspective (Hill, 2009). Throughout the therapeutic process, clients attempt to make meaning of the encounters based on their experiences and understandings. Beginning this research with a participant and clinician unfamiliar with each other reduced the chance of outcomes resulting from previous interventions and therapeutic processing with the therapist.

A client's subjective perception of a therapist's helpfulness and hindrance can fluctuate throughout treatment and each psychotherapy session (Swift et al., 2017; Cocklin et al., 2017; Hill, 2005). This fluctuation emphasizes the personal nature of perception. End-of-session measures do not consider the variations during a session, and participants may not point out issues that arise (Swift et al., 2017). Even though a therapist may be perceived as helpful to the client in one situation, the same therapist may be understood as impeding at another time. Research by Burton and Theriault (2019) identified four primary areas of concern for therapy participants that interfered with the therapeutic process. The issues included therapist incompetence, distraction, clinical errors, and pressuring the participant. The identified problems revolved around the client's subjective perception of their therapist being unhelpful and unprofessional (Burton & Theriault, 2019). When a therapeutic hindrance is unresolved, the participant may leave therapy prematurely and assume treatment is ineffective (Burton &

Theriault, 2019).   If there is a positive client-therapist rapport, the participant may not discuss

the hindrance with their therapist, and they may stay in treatment and forgive the issue (Burton &

Theriault, 2019).

        Some hurdles clients may experience in psychotherapy were discussed in a study by

Kleiven et al. (2020). The research focused on client openness in early treatment, which applied

to this current study. The four themes that kept clients from opening up during therapy sessions

were participants being worried about overwhelming emotions, lack of trust, inability to say

what they wanted, and shame (Kleiven et al., 2020). A client's reduced openness may interfere

with treatment progress, but interventions can address this barrier in the therapeutic setting.

Client openness is connected to how safe, heard, and supported a client feels in the therapeutic

relationship (Hill, 2009). The principles of Carl Rogers' client-centered approach emphasize that

facilitative conditions of unconditional positive regard, empathy, and genuineness are necessary

to develop a therapeutic relationship between a therapist and a client. Although the early phase of

treatment can be challenging, it often yields significant improvement in the participant's

subjective well-being (Howard et al., 1993; Rubel et al., 2015; Hill, 2005; Hill, 2009).

        A therapist's interventions, support, and methods can help a client counter

discouragement, gain hope, and improve their perceived well-being (Hill, 2005; Cocklin et al.,

2017; Swift et al., 2017). Additionally, studies have found that a therapist's technique affects

how helpful a client perceives the therapist (Cocklin et al., 2017; Swift et al., 2017). A therapist

that is thought of as helpful invites a client's optimistic view of the therapist's ability, approach,

and supportiveness. Continuing to find methods and interventions that help a client feel

supported can improve client outcomes and is an essential topic for research and this study.

When clients sense that they have some control over their therapy session, they may talk more freely (Cocklin et al., 2017). There is an indication that a client's autonomy and openness translate to viewing their therapist as being helpful. This dynamic reinforces the impact of a therapist's technique on the client-therapist relationship along with the success of the therapeutic process (Hill, 2005). Tailoring techniques, interventions, education, and support to the individual client can improve treatment outcomes. Matching therapeutic methods to the phase of treatment may also improve efficacy. For example, a client's remoralization, improved feelings of well-being, and hopefulness are typically early therapy outcomes (Hill, 2005). Awareness of the phase of treatment is a vital consideration when a therapist selects methods and interventions. Some therapy phase considerations in this research were based on the participants having yet to start treatment and having no prior contact with the study therapist.

Teletherapy

Teletherapy is a remote therapy that can be held in actual time, synchronous or in delayed time, asynchronous (Aafjes-van Doorn, 2022). Synchronous teletherapy may use audio-only or audio and video to facilitate a therapy session in real time between one or more clients and a therapist. The audio-only type of teletherapy usually utilizes communication through telephones, although computers have an audio-only function that may be used, too (Aafjes-van Doorn, 2022). Videoconferencing is an audio and video teletherapy session, enabling both parties to see and hear each other in real-time (Aafjes-van Doorn, 2022). Teletherapy provides convenience and more options for mental health services (Atzl et al., 2020; Khan et al., 2021). Synchronous teletherapy was used in this study. Since teletherapy is becoming more available, examining interventions in teletherapy is needed. This unique study focuses on pets as an adjunct treatment in their owner's teletherapy session.

Teletherapy is sometimes referred to as telehealth, a generalized term applied to virtual health care. The origins of telehealth date back to the 1950s and the use of two-way television for telehealth visits (Frehse,2021; Wittson & Benschotter, 1972). At that time, telehealth was not limited to healthcare use; it was also used for consultations, group treatment, and academia. Doctors, students, patients, and professors benefited from the innovation of telehealth, allowing them to be virtually connected. Approximately 40 years after telehealth's introduction, continued interest in telehealth and advancements in technology contributed to the progression of telehealth (Frehse, 2021). Although telehealth has benefits, there are also challenges and concerns (Hertlein et al., 2015; Barker & Barker, 2021).

Some concerns with teletherapy were found in a Barker and Baker (2021) survey of 114 counselors who predominantly met with their clients face-to-face before the COVID-19 pandemic. The counselors' recent experience with adopting or expanding remote session practices during the pandemic was assessed (Barker & Barker, 2021). Over half of the counselors in the study had no experience with online counseling. Technological issues were a primary concern as they can interrupt the effectiveness and professionalism of the counseling being provided (Barker & Barker, 2021; Norwood et al., 2018). However, as technology improves, these concerns may be a minor issue in the future.

Another concern was the client's ability to form a working alliance with their counselor in a teletherapy session, especially with students (Barker & Barker, 2021). For providers wanting to offer teletherapy sessions, developing ways to improve the client's participation and overall experience may take creativity and new ways of looking at the therapeutic process to find what works (Atzl et al., 2020; Gros et al., 2013). Teletherapy is a possible choice for those interested in using a virtual delivery method for psychotherapy. According to research findings, teletherapy

and face-to-face therapy have similar outcomes (Khan et al., 2021; Yuen et al., 2015; Gros et al., 2013; Pierce et al., 2021). Although teletherapy is an effective option for psychotherapy delivery, it is not for everyone.

Pandemic

Mental health support is crucial during times of crisis (Shultz et al., 2015). The Corona Virus Disease 2019 (COVID-19) pandemic was such a time; it was a health crisis. Social distancing, lockdown mandates, and fear limited the options for psychological services (National Center for Immunization and Respiratory Diseases, Division of Viral Diseases, 2020; Shultz et al., 2015). The necessity of mental health support led to teletherapy being adopted by providers and clinics at an increased rate during the COVID-19 pandemic (Cantor et al., 2021). Additionally, some of the restrictions on telehealth use were lifted during the pandemic to accommodate client access to services which also contributed to the increased use of telehealth services (U.S. Department of Health and Human Services, 2022). The rise in telehealth availability during this health crisis was substantial, with some areas in the United States experiencing a 240% increase (Cantor et al., 2021; Connolly et al., 2022; U.S. Department of Health and Human Services, 2022). Data collected through the Substance Abuse and Mental Health Services Administration (SAMHSA) indicated that at the beginning of 2020, less than half of the mental health treatment centers provided telehealth services. By the following year, nearly 60% offered teletherapy.

As the COVID-19 pandemic progressed, the availability of telehealth nearly doubled compared to pre-pandemic availability (Pierce et al., 2021; Cantor et al., 2021; Lin, Heckman & Anderson, 2021). Although telehealth has experienced rapid growth, some facilities and practices do not offer a telehealth option (Cantor et al., 2021). Future research on teletherapy practices can

increase its acceptance and growth with the understanding that teletherapy may not be ideal for

all (Khan et al., 2021). By providing insight into teletherapy practices, outcomes, and

effectiveness, hesitant providers and clients might consider virtual therapy when appropriate.

Teletherapy appears to be here to stay as an option for psychotherapy delivery (Frehse, 2021;

Connolly et al., 2022). This study aims to contribute needed research to the body of literature on

teletherapy, specifically in the area of pets and teletherapy.

Animal Assisted Intervention

Humankind has demonstrated an interest in animals and a connection with nature

throughout time (Levinson & Mallon, 1997; Fine & Beck, 2019; Serpell, 2019). Historically,

animals have been linked to mystical, healing, and spiritual powers with various beliefs about

how an animal's curative abilities manifested. Some of those beliefs were connected to a person

interacting with certain animals, consuming a specific animal part, or exalting an animal as a

god. As the 18th century began, society's thoughts about animals started to focus on the benefits

of a human-animal relationship (Fine et al., 2019b; Serpell, 2019). This period was also the start

of animal companionship as an adjunct treatment for individuals with mental illness. This may

have been the beginning of what would later be known as animal-assisted therapy (AAT).

Although there was a drop in interest in the therapeutic use of animals in the early 20th century, it

did not vanish forever (Levinson & Mallon, 1997). Interest picked up again in the latter half of

the century. From that point forward, animals became more incorporated into therapeutic work,

including AAT, Animal Assisted Activities (AAA), Animal Assisted Education (AAE), Animal-

Assisted Interventions (AAI), Emotional Support Animals (ESA), and service animals (U.S.

Department of Justice, 2011; Fine, 2019; Von Bergen, 2015).

An animal-assisted intervention (AAI) is the overarching name for any therapeutic intervention that includes an animal as part of the treatment or interaction. Animal Assisted Therapy (AAT), Animal Assisted Activities (AAA), and Animal Assisted Education (AAE) are all considered interventions that incorporate animals and are a form of AAI (Fine et al., 2019b; Chandler, 2011; VanFleet et al., 2019). The importance of differentiating the types of AAI is to identify the purpose of each modality and guidelines for applying the intervention. Two common areas of animal therapy are therapy dogs and equine therapy.

The welfare of all participants in any AAI should be considered, including animal welfare (Fine et al., 2019a). Not all animals will be ideal candidates for AAI. The careful selection of a non-aggressive animal is a vital step before considering any animal as an AAI participant. The relationship between the handler and the companion animal includes the handler having a basic understanding of animal behavior; this is essential. As with any therapeutic approach, the risks and benefits must be assessed (Burton, 2013). AAI would not be appropriate if there are health concerns, fear of animals, safety issues, or cultural reasons related to animals (Melson et al., 2009).

Animal Assisted Therapy

Animal-assisted therapy (AAT) is a specific animal-assisted intervention (AAI) that incorporates one or more companion animals in a therapeutic process (Chandler, 2011; Chandler & Otting, 2018; Fine et al., 2019b). The therapy animal and therapist work together as co-facilitators of a therapy session. The therapist usually is the owner and handler of the therapy animal. AAT is not limited to mental health therapy; it has been shown beneficial in other healthcare fields such as nursing, speech therapy, hospice care, rehabilitation, physical therapy, and more (Barker &

Dawson, 1998; Flynn et al., 2020; Nurenberg et al., 2015; Richeson, 2003; Chandler, 2011; Fine et al., 2019b; Friedmann, 2019; Kamioka et al., 2014; Dell et al., 2021).

Just as a variety of professions utilize AAT, there are numerous settings in which AAT has successfully been applied as an adjunct treatment. These settings include prisons, hospitals, schools, skilled nursing facilities, farms, and psychotherapy practices. The training and credentialing of AAT facilitators bring credence to AAT as an adjunct modality (VanFleet et al., 2019). AAT can include a therapy animal and its owner serving as co-therapists in a therapy session (Jones et al., 2018). Sometimes, a therapy animal and its handler may join a session with a therapist and client (Fine et al., 2019b; Chandler, 2011).

AAT is based on the connection between humans and animals, known as the human-animal bond (HAB). (Johnson & Bruneau, 2019; Fine et al., 2019b; Fine, 2019; Serpell, 2019; Charles, 2014). HAB was not formally identified until the 20th century, but this connection has been apparent throughout time. The application of AAT has grown since its beginnings, likely rooted in England's York Retreat, which was once an asylum for individuals with mental illnesses (Chandler, 2011; Levinson & Mallon, 1997; Hooker et al., 2002). The William Tuke family created the York Retreat after recognizing the need for improved patient care in psychiatric hospitals and asylums. The York Retreat was a behavioral treatment center established in 1792, and patient treatment included interaction with animals in a sanctuary setting to promote healing. This was a significant contrast to the harsh environment in asylums. The history of AAT is filled with many examples of compassionate treatment approaches that are as remarkable as the York Retreat. These approaches have all contributed to the growth of AAT.

Animal Assisted Activities

Many Animal Assisted Activities (AAA) can be found on college and university campuses (Crossman, 2019). AAA programs are typically implemented to help students decrease their stress. Although dogs are the usual animal participant in AAA programs, other animals, including cats, guinea pigs, and llamas, have also been participants. Through interactions with animals in AAA programs, students have shown improvement in their mood, outlook on life, and overall well-being (Crossman, 2019; Dell et al., 2021). This type of intervention mainly involves socializing with animals for therapeutic benefits (Amerine & Hubbard, 2016; Chandler & Otting, 2018; Fine et al., 2019b; Friedmann, 2019).

Animal Assisted Education

Animal Assisted Education (AAE) is an education-based intervention that includes animals, such as education about animals, teaching about empathy, and learning about animal care (Chandler & Otting, 2018; Fine et al., 2019b). Some examples of an AAE program are students reading to an animal or learning about animal care by brushing an animal. AAE is a type of animal-assisted intervention (AAI).

Animal Informed Therapy

The lack of clarity in Animal Assisted Intervention (AAI) literature related to a client's pet being included in a therapy session with them does not eliminate this as an intervention option. The relationship between an animal and its owner is vital to AAI (Chandler, 2011; Johnson & Bruneau, 2019; Charles, 2014). The handler or AAI provider has a relationship with their companion animal. Likewise, a pet owner and their pet can have a relationship. When a pet is incorporated into its owner's therapy session, the human-animal relationship can enrich the therapeutic process (Jones et al., 2018; Moga, 2019).

Animals tend to have a calming effect on people, especially if there is an emotional attachment between the animal and the human. This connection can enhance a person's feelings of security and trust in a session (Amerine & Hubbard, 2016; Friedmann, 2019; Johnson & Bruneau, 2019). Building on the connection between pet owners and their pets by including them in treatment sessions together is an opportunity for the clinician to learn about the client and pet relationship (Fine et al., 2019b). Adding a pet to a therapy session can be accomplished by the pet physically being present in the session with its owner. If the pet is not physically present in the session, discussing the pet is also a means of being included in the therapy process.

This alternate way of incorporating animals in therapy, "Animal Informed Therapy" (AIT), was coined by Jeannine Moga (2019, p.261). Instead of incorporating a therapy animal that the therapist or other service provider owns, a client-owned companion animal is included in the client's therapy session. AIT recognizes the therapeutic value of the HAB and the attachment between pets and pet owners (Moga, 2019, Fine & Beck, 2019). A pet may not be interested in other people besides its owner. This is not an ideal trait for an AAI animal assistant but is not an issue for AIT (McConnell & Fine, 2019; Moga, 2019). AIT differs from AAI because the animal is the client's companion, not the clinician/handler's pet (Moga, 2019, Fine & Beck, 2019). AAI animal assistants are commissioned to aid the clinician/handler with interventions. There is an indication in research that the established relationship between the client and their companion pet is what can enhance interventions, not merely the familiarity between an animal and a human (Horn et al., 2012). The crucial part is the relationship between the pet and its owner, so it is okay if a client's pet is not interested in the clinician.

Animal Informed Therapy does not take away from the usefulness and effectiveness of AAI. A trained therapy animal may be a better fit for some people's treatment, and a client and

their pet may be ideal for others (Moga, 2019, Fine & Beck, 2019). Participating in therapy with

animals may be avoided by persons due to their animal-related fear, history, or preference

(Levinson & Mallon, 1997). Understanding how clients think and feel about animals is essential

to keep in mind when considering the inclusion of animals in treatment. Animal fear or concerns

in adults may be rooted in childhood memories that are based on actual or perceived events.

However, if the inclusion of an animal in therapy is desired, AIT is a way to incorporate animals

into therapy by using the client's pet in treatment. Since pet ownership is common, there could

be increased pet owner interest in bringing their pet to therapy sessions (Statista, 2021).

Animal-informed therapy might be an ideal addition to treatment for many pet owners and is

worth considering.

When providing any animal-assisted intervention, the aim is to provide a safe and

therapeutic environment for all involved, including the animal. Various animals have been

incorporated into animal-assisted therapy, interventions, and education (Hooker et al., 2002;

Levinson & Mallon, 1997; Hartwig & Smelser, 2018; VanFleet et al., 2019). Some animal

assistants have been dogs, cats, horses, birds, small animals, and farm animals, to name a few.

Not all animal adjuncts have served the same purpose, and the settings used have been diverse.

Understanding the reason for incorporating an animal into any treatment is needed to select the

right animal to fit the situation and to create a safe environment (MacNamara et al., 2019;

Hooker et al., 2002; Serpell, 2019; VanFleet et al., 2019; McConnell & Fine, 2019).

Additionally, recognizing the client's needs significantly contributes to identifying an appropriate

animal adjunct and its role in treatment.

Pets

The human desire to be close to nature has been prevalent throughout history and is a notable part of the human experience (Levinson & Mallon, 1997; Serpell, 2019). The human connection with nature, specifically the animal kingdom, has served different purposes throughout time. Not only were animals historically linked to food and labor, but they also provided companionship and comfort. Additionally, animals were thought to have healing and spiritual powers (Serpell, 2019). During early civilization and throughout history, humans might have been on to something regarding animals' healing properties. Current research has reinforced these ideals that animals can improve people's well-being and health (Wheeler & Faulkner, 2015; Chandler et al., 2015; Ma et al., 2020; Sane & Sawarkar, 2017; Chandler, 2019).

Historical recordings provide insight into the early interactions between humans and animals (Levinson & Mallon, 1997; Serpell, 2019). An example of first interactions was captured in Paleolithic artwork on cave walls. The cave artwork is assumed to be a snapshot of what life was like during this period. Animals have continued to be depicted in art, literature, and research over the years and still are today (Knight & Herzog, 2009; Levinson & Mallon, 1997; Chez, 2017). There are numerous children's books about animals or animal characters, further demonstrating the human fascination with animals (Seuss & Joyner, 2019; Melson, 2001; White, 1973; Lobel, 1972; Fallon, 2015). The abundance of animal-influenced children's literature emphasizes the natural human interest in the animal kingdom.

Although historical documentation provides some insight into the past interactions between humans and animals, there are limitations to the interpretations of these relationships (Fine, 2019). What might appear to be a likely explanation from a modern perspective could be skewed when viewed from the lens of ancient worlds, early civilizations, and primitive times.

Seemingly, human interaction with undomesticated animals initiated the trajectory toward the domestication of animals and pet ownership (Levinson & Mallon, 1997; Serpell, 2019). However, the meaning of early humankind's relationship and interactions with animals may not be fully understood. As civilization began to change and people moved out of the wilderness, creating their domesticated lifestyle, the domestication of animals made sense.

Animals have a long history of companionship with people (Levinson & Mallon, 1997). Domestication was a practical way to bring the animals out of the wilderness and closer to people. Historically, it is assumed that once animals were domesticated, their primary use was for work labor purposes and to provide provisions for humans (Serpell, 2019). Although, some domestic animals served another purpose, too. Another goal for domesticating animals could have been maintaining a connection to nature (Levinson & Mallon, 1997; Serpell, 2019). As people found comfort and companionship with an animal, the domesticated animal might become what would be considered a pet today.

The perception of animals and interest in pet ownership began to shift in the late 1600s (Serpell, 2019). During this time, relationships with animals become more desirable and accessible to the general population. There was a societal emphasis on the social and nurturing benefits of a human and animal relationship. Since that time, the interest in animals as pets has grown (Statista, 2021; Serpell, 2019). Ideally, a pet is a domesticated animal that is cared for by a person for enjoyment and companionship (Fine & Beck, 2019; Charles, 2014). The integration of animals into the lives of humans has continued to increase (Statista, 2021). The percentage of households with pets has risen by 14% in the United States over the last 20 years.

Pets have much to offer the pet owner (Chandler, 2019; Levinson & Mallon, 1997; Fine, 2019; Fine et al., 2019b). Pets can be good listeners, provide affection, and are non-judgmental.

Owning a pet has been shown to reduce loneliness and depression in some owners (McConnell et al., 2011; Janssens et al., 2020; Johnson & Bruneau, 2019). Research has indicated that a pet owner's social needs may be improved and even fulfilled by their relationship with their pet (Burton, 2013). Interestingly, humans have recognized the benefits of animals throughout time, and the human connection with animals has always had a therapeutic influence (Fine et al., 2019b).

Pets have been reported as a source of friendship and companionship for many pet owners, which contributes to research findings that have shown positive benefits of pet ownership (Levinson & Mallon, 1997; Friedmann, 2019; Wheeler & Faulkner, 2015; Chandler et al., 2015; Payne et al., 2015; Ma et al., 2020; Sane & Sawarkar, 2017). The simple presence of a companion animal has been connected to feelings of happiness and satisfaction in a pet owner (Janssens et al., 2020). Being with a companion animal has also shown decreases in anxiousness and sadness in the pet owner. A pet's healing effect on its owner is sometimes referred to as the "pet effect" (Wheeler & Faulkner, 2015; Janssens et al., 2020).

Dogs

The general nature of a dog lends itself to the role of a therapy animal, service animal, companion, and friend (Fine & Beck, 2019). The first account of pet therapy was in the early 1960s when Boris Levinson unexpectedly discovered that his pet dog was a valuable adjunct to therapy (Fine et al., 2019b; Levinson & Mallon, 1997). Levinson created the phrase "pet therapy" to represent the beneficial inclusion of a pet in a therapy session (Fine, 2017, p. 11). Since then, there has been growing interest in therapy dogs and animal-assisted interventions (AAI) (Fine et al., 2019b; Levinson & Mallon, 1997; Kamioka et al., 2014).

Professional organizations that supported AAI providers began to develop in the 1970s (Fine et al., 2019b). The organizations focused on therapy dogs and their handlers, such as Therapy Dogs International, the Delta Society, and Therapy Dogs Incorporated. With the growth of AAI and increased use of therapy dogs, there became a need for clarification on expectations, training requirements, credentials, and overall standards for those providing AAI, along with the requirements for the therapy dogs (Fine et al., 2019b). An AAI organization, Animal Assisted Intervention International (AAII), developed its first book of standards for AAI practices in 2012, with their current revisions occurring in 2018. The modifications are likely due to the increase in therapy dog use, growing interest in AAI, and more research related to the topic. Notably, the recency of the last revision demonstrates that there continues to be a need for refinement in the standards of AAI.

There are various ways that dogs can assist people, in addition to the benefits of pet ownership (Yamamoto & Hart, 2019). An established relationship between a pet owner and their pet dog enhances their interactions with each other (Horn et al., 2012). The relationship, not merely their familiarity with each other, connects the pet and its owner (Burton, 2013). If a dog is included in AAT, the therapist will typically have their pet dog as the co-therapist in the therapy session (Walsh, 2009).

Service Animal

Animals can assist people by working as service animals (Foster, 2018; Yamamoto & Hart, 2019). Service animals are trained to help people with a disability. The Americans with Disabilities Act (ADA) provides the criteria for an animal to be considered a service animal, along with the specifications about the function of a designated service animal (Kogan et al., 2016). Typically, a service animal is a dog and is referred to as a service dog or assistance dog,

but on occasion, a miniature horse can be trained as a service animal, too (Yamamoto & Hart, 2019; Kogan et al., 2016; Foster, 2018).

People may not realize that service animals are not pets (Kogan et al., 2016). Although dogs and miniature horses can be pets, they cannot be both a pet and a service animal. A service animal is trained to assist an individual with a disability by performing a task associated explicitly with their disability (Yamamoto & Hart, 2019; Kogan et al., 2016; Foster, 2018). The trainability, availability, and general societal acceptance of dogs contribute to their prevalence as service animals (Wlodarczyk, 2019). Although a miniature horse can also be trained as a service animal, this occurs less frequently.

A service animal's primary focus is performing a trained task, and they are sometimes identified as medical equipment (Stewart et al., 2022; Wlodarczyk, 2019). That is not to say that a service animal and their handler do not develop a relationship. Service animals are not manufactured pieces of medical equipment; service animals are living creatures. Secondary effects related to the HAB can benefit the service animal and the handler (Yamamoto & Hart, 2019; Johnson & Bruneau, 2019; Fine & Beck, 2019; Stewart et al., 2022). Since a service animal is more than medical equipment, a handler's interaction with their service animal, along with their care and reliance on each other, contribute to bonding. These benefits are similar to what a pet owner might experience. Saying that they are not pets seems contradictory when recognizing the close relationship between some service animals and their handler.

Service animals have access privileges because of their training, functional role, and their medical necessity (Yamamoto & Hart, 2019; Kogan et al., 2016; Foster, 2018). They are legally permitted to accompany their owner to places where non-service animals are not allowed. The differences between service and non-service animals can be unclear to the general public

(Wlodarczyk, 2019). The confusion may be due to people's expectations of what a service

animal should look like and how they expect a disability to present. Although therapy animals,

emotional support animals (ESA), and pets are not the same as service animals, they all serve a

purpose that can benefit humans and animals (Foster, 2018; Kogan et al., 2016; Hoy-Gerlach et

al., 2019). The specialized job of a service animal highlights the therapeutic connection between

animals and people (Fine, 2019; Knight & Herzog, 2009; Wlodarczyk, 2019).

Emotional Support Animal

The role of an emotional support animal (ESA) is in the name. They are animals that provide

emotional support and comfort to a person with a mental health disability as deemed necessary

by a mental health professional or a doctor (American Veterinary Medical Association, 2022;

Stewart et al., 2022). Any animal that can legally be owned may be selected as an ESA. The size

or species does not matter, but typically an ESA is a cat or a dog. The ESA concept seems

straightforward, but that has yet to be the case. There needs to be more clarity about various

aspects of an ESA designation.

Like a service animal, an ESA is an assistance animal whose handler has a disability, and

the animal aids their handler due to the disability (Yamamoto & Hart, 2019). Until recently,

service animals and ESAs were permitted to travel on an airplane with their handler (American

Veterinary Medical Association, 2022). As of 2021, this access is only extended to service

animals, specifically service dogs. Both ESAs and service animals are permitted to live in a

dwelling with their handler under the Fair Housing Act (FHA), even if a no-pet policy is in place

(American Veterinary Medical Association, 2022; Stewart et al., 2022). However, an ESA is not

a service animal. They do not have all the same privileges, and they do not serve the same

purpose. Service animals are trained to perform tasks directly related to their handler's disability

and needs (Yamamoto & Hart, 2019). The fact that ESAs and service animals have similarities is likely the source of misperceptions about both.

Designating an animal as an ESA is determined by a medical doctor or mental health clinician based on their clinical opinion (Wlodarczyk, 2019; Stewart et al., 2022). The pet owner must have a mental health disability, and the pet would serve a therapeutic role related to the disability. The best practice would be for the practitioner treating the individual to make the determination, including the ESA as an intervention on the treatment plan, and write the ESA designation letter. Some entities have created a business out of designating pets as ESAs and providing letters (American Veterinary Medical Association, 2022; Stewart et al., 2022). Also, some companies have sold fraudulent items that an animal wears to appear as a service animal and ESA.

A designated ESA is an example of an intervention based on the connection between humans and animals. Studies indicate that a pet can provide health and wellness benefits to its owners (McConnell et al., 2011; Janssens et al., 2020; Johnson & Bruneau, 2019; Burton, 2013). An ESA is a pet (Stewart et al., 2022). They are not required to have special training or to perform a particular task (American Veterinary Medical Association, 2022; Hoy-Gerlach et al., 2019). They are designated as needed support for their owner due to mental health reasons. Knowing the differences between animal roles and designations and staying within the guidelines of each can help maintain their integrity. Consistency and clarity can also help the general population better understand the differences.

Horses

Equine-facilitated psychotherapy (EFP) allows individuals to cultivate a therapeutic relationship with a majestic and powerful animal commonly known as a horse (Karol, 2007). The EFP client

forms therapeutic relationships through healing interactions with the horse and practitioner. A

practitioner facilitates this experiential therapy, and the co-therapist is a horse. A therapy horse's

patience and true nature allow a client to practice and develop communication and interpersonal

skills and then apply these skills to relationships outside the therapeutic arena of EFP. Grooming

and tending to the horse helps the client to focus on the needs of others and to experience being

needed by someone (Flynn et al., 2020; Latella & Abrams, 2019). In line with Carl Rogers'

client-centered method, the therapy horse provides acceptance, empathy, genuineness, and

unconditional positive regard to the client (Bachi, 2013; Hill, 2009; Flynn et al., 2020).

To encourage autonomy, the EFP client decides on their therapy path (Karol, 2007). The

client decides when to meet with their therapy horse, sit in the saddle, ride the horse, etc. EFP is

an example of a psychotherapy session held in a non-traditional setting. EFP incorporates the

human-animal bond (HAB), experiential therapy, and attachment themes (Bachi, 2013; Latella &

Abrams, 2019). The unique outdoor setting of a horse stable or pasture may evoke feelings of

safety, trust, and openness in the client.

Farm Animals

Green Care is a nature-based therapeutic intervention that includes plants, animals, and other

natural elements, individually or combined, for curative benefits (Fine et al., 2019b; Berget et al.,

2008). Various treatments and interventions are considered Green Care, such as nature therapy,

eco-therapy, wilderness therapy, and AAI. Care Farming is also a type of Green Care, but it

applies explicitly to farming and farm animals as therapeutic interventions in a farm environment

(Pedersen et al., 2011). Participants interact with farm animals and engage in typical farm

activities.

Care Farming is one name for a therapy incorporating farm animals in client treatment, but there are other names, too. Studies have indicated benefits associated with Care Farming for treating Autism Spectrum Disorder (ASD) symptomology, mood disorders, low self-esteem, poor boundaries, and more (Pedersen et al., 2011; Pedersen et al., 2012; Berget et al., 2008; Barnhart et al., 2020). Some identified benefits are increased confidence, decreased anxiousness, and improved well-being. There is also an indication of a positive correlation between Care Farming and the improved quality of the participant's farming skills. The combined experience of farm work and interaction with farm animals in a working farm setting may contribute to the indicated effectiveness of Care Farming (Pedersen et al., 2012). Participants can learn farming skills, socialize with humans and farm animals, and be a part of something possibly extraordinary for them.

Farm animal-assisted interventions are also a Green Care and Care Farming treatment modality that includes farm animals and farm skills (Barnhart et al., 2020; Pedersen et al., 2012). Social skills, empathy, tactile stimulation, relationships, confidence, and life skills may be targeted by farm-animal-assisted interventions (Barnhart et al.,2020). The treatment and intervention types differ depending on which farm animal participates. Donkeys, goats, ducks, cows, pigs, and sheep are some of the farm animals involved in this intervention. As part of treatment, a participant might feed, pet, talk to, ride, care for or hold a farm animal. Matching the right animal and intervention to the purpose of the AAI is necessary to create an environment that is safe for the animal and participant (MacNamara et al., 2019; Hooker et al., 2002; Serpell, 2019; VanFleet et al., 2019; McConnell & Fine, 2019). The participant's needs also require consideration when selecting a farm animal-assisted intervention. Farmers and therapists have

indicated support for Care Farming and belief in the benefits of interacting with farm animals (Berget et al., 2008).

Dolphins

Dolphin-assisted therapy (DAT) is an AAT offered worldwide and can be expensive (Burton, 2013; Marino & Lilienfeld, 2021). DAT incorporates a dolphin in a client's therapy in ways that may include watching the dolphin swim, being in poolside proximity to the dolphin, or being in the water with the dolphin (Marino & Lilienfeld, 2021). DAT activities might include feeding, touching, swimming, or being pulled by the dolphin. DAT is usually identified as a therapeutic intervention for Autism Spectrum Disorder (ASD) but has also been an intervention for other conditions, including physical disability, neurological impairment, Attention-Deficit/Hyperactivity Disorder (ADHD), and intellectual disability (Kamioka et al., 2014; Marino & Lilienfeld, 2021. Children and adults have been included in DAT studies.

Some of the expense of DAT is due to dolphin-related costs (Marino & Lilienfeld, 2021). In addition to the cost of participating in DAT, families may have travel expenses. A DAT facility may not be near the participant's home, and flights could be required to get to the location. There are ethical concerns related to the safety and level of risk that DAT may place on the client and the dolphin. The benefits of DAT have been questioned, and there is a lack of data supporting the effectiveness of this practice (Burton, 2013; Marino & Lilienfeld, 2021). Dolphins are beautiful creatures that can be enjoyable to watch. Being near a dolphin may be part of the draw to participate in this therapy. Some of the challenges in DAT research are questions about the effectiveness of the intervention as opposed to being a placebo or novelty effect (Marino & Lilienfeld, 2021).

Other Domesticated Animals

In addition to the previously discussed AAI companion animal, other species of animals have also participated in an AAI (Law & Scott, 1995). Small, domesticated animals, sometimes called "pocket pets," may be incorporated as a treatment intervention (Flom, 2005; Krskova et al., 2010). A pocket pet might be a guinea pig, hamster, rabbit, gerbil, turtle, or another small, domesticated animal (Flom, 2005; Law & Scott, 1995; Krskova et al., 2010). Small animals may be personal pets but are also commonly included as adjuncts in school settings.

One solution to maintain a connection with nature was to bring nature to the classroom. Adding animals to a school setting is not new (Smilie, 2022). The origin of classroom animals aligns with the connection between humans and animals that has been documented throughout the ages (Knight & Herzog, 2009; Levinson & Mallon, 1997; Smilie, 2022). People's interaction with nature has shifted over time as society moved to a domesticated lifestyle. Likewise, education-based nature studies that allowed students to observe flora and fauna in their natural environments changed with the increase in urban living (Smilie, 2022).

The purpose of a classroom animal could be for scientific education, but other benefits may also be connected to the presence of an animal in the classroom (Herbert & Lynch, 2017). Classroom animals began being incorporated into the schoolroom in the 1900s to teach students about the cycle of life from reproduction to death (Smilie, 2022). Student exposure to a classroom pet living and dying expanded their experience beyond a science lesson. There were social-emotional components. By having a classroom pet, students may benefit from social-emotional growth, learning about animal care, increased interest in school, and academic gains (O'Haire et al., 2013; Smilie, 2022; Brelsford et al., 2017; Herbert & Lynch, 2017; Flom, 2005).

Research has also suggested that students may benefit from small animals at their school (Flom, 2005; O'Haire et al., 2013; Herber & Lynch, 2017; Krskova et al., 2010; Law & Scott, 1995). Some research on this topic has been conducted in special education classrooms (Krskova et al., 2010; Law & Scott, 1995). When incorporating a small animal in a special education classroom for children with ASD, a study found differences in student behavior when they had contact with a therapeutic animal compared to when the therapeutic animal was absent (Krskova et al., 2010). The student's interactions with each other increased when the therapeutic animal, a guinea pig, was present. This study suggests that an increase in social behavior and contact with classmates may be connected to the presence of the guinea pig in the classroom.

Pocket pets have been included in research to understand better the impact of animals as an adjunct in a school setting (Flom, 2005, O'Haire et al., 2013; Herber & Lynch, 2017). Although a typical inclusion of an animal at a school appears to be a classroom environment, pocket pets can also be helpful for school counselors in their work with students (Flom, 2005). When working with students, a gerbil, guinea pig, or other pocket pet can be an effective way for a counselor to connect with a student. A student's interactions with the pocket pet can provide teaching moments, insight, and empathy. The therapeutic benefits of small animals to humans reiterates the value of the connection between people and nature (Levinson & Mallon, 1997; Knight & Herzog, 2009; O'Haire et al., 2013; Smilie, 2022; Brelsford et al., 2017; Herbert & Lynch, 2017; Flom, 2005)

Non-living Animals

The animal kingdom has been of interest to humans throughout the ages (Knight & Herzog, 2009; Levinson & Mallon, 1997). The appeal of animals to humans includes not only living animals but also their non-living representations. A non-living animal could be a robotic, stuffed,

or other animal representation. Non-living animals are sometimes sources of entertainment, such as mechanical bull-riding simulators, carousel horses, and animatronic animals. Toys and collectibles can also be non-living animals, including stuffed animals, animal figurines, and mechanical animals.

Robotic animals have been studied as a therapeutic adjunct alternative to living animals (Banks et al., 2008; Fogelson et al., 2021; Lee et al., 2018; Silva et al., 2019; Matsuura et al., 2020). In studies, robotic and living animals have both shown benefits to the participants compared to no intervention. Typically, the robotic animal used in research is a dog, but there have been others. Robotic cats, seals, and horses have also been included. Many of these studies have included older adults or individuals with ASD. The research has indicated that mechanical animals can decrease loneliness and depression in individuals with dementia (Banks et al., 2008; Fogelson et al., 2021).

Although robotic animals may seem to have life-like qualities and features that enable a person to interact with them, they are not living creatures (Melson et al., 2009). A robotic animal likely will not provide the same benefits of pet ownership shown in research (Chandler, 2019; Levinson & Mallon, 1997; Fine, 2019; Fine et al., 2019b; Silva et al., 2019). Attachment can develop between humans and living animals, creating a bond (Melfi et al., 2021; Meehan et al., 2017; Hawkins et al., 2017; Vanegas-Farfano & González-Ramírez, 2016). The companionship between people and animals can be comforting and therapeutic for both the animal and the human. Sometimes the bond between a pet and its owner can be more substantial than a person's connection with other people. The therapeutic benefits of human and animal interaction may diminish if the animal is robotic instead of living (Silva et al., 2019)

In therapeutic settings, there are circumstances when a non-living animal may be more appropriate than a living animal. Suppose there are concerns about the animal or person's safety, liability, health risks, cultural reasons, or fear of animals. In that case, a non-living animal, such as a robotic animal, might be a good alternative (Melson et al., 2009). As with any treatment, the risks and benefits must be assessed (Burton, 2013). There may also be practical reasons for choosing a non-living animal over a living animal due to animal restrictions, costs, or other challenges.

Non-living animals such as stuffed animals are a viable option as an adjunct treatment or a personal artifact. They have been connected to comfort and calm for children and adults (Brody et al., 2012; Carson & Eilers, 2009; Arsenault & Musgrave, 2015). Research demonstrates that affection and care can be transmitted through physical contact, and a non-living animal may serve as this conduit for contact comfort (Harlow, 1958). A stuffed animal can also hold sentimental value or serve as a transitional object for a person (Carson & Eilers, 2009; Arsenault & Musgrave, 2015). Non-living animals have demonstrated usefulness to humans; although they are not living animals, they can have benefits.

Summary

Animals have been incorporated into the lives of humans in various ways throughout time (Levinson & Mallon, 1997). Some animals, commonly dogs, are trained and certified as therapeutic aids that provide handler-specific assistance related to the handler's disability (Foster, 2018; Yamamoto & Hart, 2019). Service dogs are just one way an animal helps a human. An animal may be a pet, emotional support animal, therapy dog, classroom pet, pocket pet, and more. (Chandler, 2019; Levinson & Mallon, 1997; Fine, 2019; Fine et al., 2019b; Yamamoto & Hart, 2019; Flom, 2005; Law & Scott, 1995; Krskova et al., 2010). The diversity

of treatment modalities with animals seems to represent the uniqueness of humans, including their preferences and needs.

In this study, the participant's dog will accompany the participant in some teletherapy sessions and be excluded from others. The connection between a pet and its owner can be strong, forming a meaningful attachment sometimes likened to family (Fine, 2019; Charles, 2014). Studies have associated pet ownership with health and wellness benefits (Levinson & Mallon, 1997; Friedmann, 2019; Wheeler & Faulkner, 2015; Chandler et al., 2015; Payne et al., 2015; Ma et al., 2020; Sane & Sawarkar, 2017; Compitus, 2021). There has been an indication that pet owners' mood improves when they are with their pet (Janssens et al., 2020). The healing effect or "pet effect" is not exclusive to the pet owner (Wheeler & Faulkner, 2015; Janssens et al., 2020). The HAB can provide comfort to the animal, too.

Although the approach used in this research may be an atypical application of AAT, the pet dog intervention applied to this study appears to align with the philosophy of AAT (Chandler, 2011; Chandler & Otting, 2018; Fine et al., 2019b). As adjunct treatments, AAT with a client's pet may or may not produce similar outcomes to a session including the therapist's pet instead. There is a modality named AIT that specifically includes the client's pet. AIT is a newer therapy concept that emphasizes the therapeutic value of the HAB and the attachment between a pet owner and their pet (Moga, 2019, Fine & Beck, 2019; Burton, 2013). AIT also matches elements of this pet and pet owner research.

Chapter Three: Methods

Overview

Chapter three will provide information about the methodology applied to this study. The research design, questions, and hypothesis will be identified and discussed. The procedure details will be outlined, including participant selection, participant criteria, measurement tools used, and the variables in this study. The analysis methods and other considerations will conclude this chapter.

Design

A single-case experimental design (SCED) was used for this study. Various designs can be used in a SCED depending on the total number of phases, the sequencing of the phases, and the number of each phase type (Kazdin, 2021). A basic two-phase design is one option considered for this study; however, the simple AB design would provide limited data, including no withdrawal data (Heppner et al., 2016). The AB design consists of only two phases, a baseline phase, known as the A-phase, and the B-phase, known as the intervention phase. The AB design is ideal when a withdrawal design is inappropriate for a study. There may be ethical reasons for choosing a basic two-phase design over a withdrawal design, such as concerns about removing an effective intervention administered in the B-phase (Graham et al., 2012). An AB design poses risks to internal validity due to maturation and history, but this issue was reduced by the AB phases being replicated to form a withdrawal design (Heppner et al., 2016; Kazdin, 2021).

This study used an ABAB SCED. An ABAB design is also called a four-phase withdrawal design. (Heppner et al., 2016). The A phases excluded the pet dog from the participant's therapy session, and the B phases included the participant's pet dog in the therapy sessions with them. The withdrawal design provided the opportunity to obtain multiple data

points in each of the four phases and "meet standards with reservations" for effect (Kratochwill

et al., 2010, p. 16). Obtaining multiple data points in each of the four phases of the ABAB design

allowed the effectiveness of the intervention to be more thoroughly assessed (Heppner et al.,

2016). A participant's thoughts and feelings during a therapy session are subjective and can

fluctuate (Hill, 2005). The fluctuation can be from session to session and within a single session.

The possibility of in-session change made multiple data points ideal for capturing what is

occurring within the session. In-session variability would have been missed if only measuring

pre-session and post-session (Heppner et al., 2016).

A SCED was ideal for this research as it can closely mirror a clinical private practice

setting. Interest in this research stems from a curiosity about the connection between people and

animals and the possible benefits of this relationship in a teletherapy session. This research study

was designed with the private practice clinician and client in mind, including the individual

nature of the clinical work done in that environment (Vannest & Ninci, 2015). The use of SCED

in psychological research is a typical design to evaluate the effectiveness of an intervention

(Lobo et al., 2017; Kratochwill et al., 2010). There are several ways to design a single case (SC)

study, and "the strongest SC studies commonly include more than one participant" (Lobo et al.,

2017, p.188). This research design sought to decrease threats to internal validity by replicating

the phases by using four phases instead of two phases and improve generalizability by increasing

the number of participants in the study from one participant to three (Lobo et al., 2017). Well-

known interventions, such as the token economy system, began with research on the individual

level and later became generalizable (Kazin, 2021). Exploring interventions at the personal level

has demonstrated usefulness and generalizability in research and clinical practice. This study

chose a pet dog as the intervention due to accessibility, popularity, and the researcher's

preference. There is potential for the generalizability of this study to different types of pets being

included in a teletherapy session. The individuality of people relates to their preferences,

including pets.

Although this research included three participants, the data analysis was at the individual

participant level, not the group level (Kratochwill et al., 2010). Previous SC research studies

have similarly included multiple participants in their design (Freeman et al., 2010; Samuel et al.,

2000). In a SCED, the function of having a control is fulfilled by the participant as they are

compared to the self and serve as the control (Heppner et al., 2016, p. 340; Lobo et al., 2017;

Kazdin, 2019). In this four-phased research, participants had a session without their pet dog to

establish a baseline. The subsequent session included the intervention of their pet dog. The two

phases repeated, creating a four-phase pattern.

Sometimes there are ethical reasons for not applying the withdrawal design to a study,

and a different format is more appropriate (Graham et al., 2012; Lobo et al., 2017). In this study,

the ethical consideration of removing an intervention was contemplated. The pet dog was the

intervention and the independent variable in this study. This intervention was reversible by

excluding the participant's dog from their subsequent teletherapy session. The pet dog

represented a support for the participant (Fine et al., 2019b; Levinson & Mallon, 1997).

Ethically, this appeared similar to a participant having a session with or without a support

person. When a support person, or support dog in this case, is excluded from the session, it is a

temporary event. The support was not excluded from interacting with the participant outside of

the session. During the withdrawal phase, the independent variable was only temporarily

excluded for the session duration. A pet dog as a variable may also be compared to an object that

may comfort the participant (Wheeler & Faulkner, 2015). When comparing a pet dog to an

object, the benefits may be likened to a person touching a pillow, blanket, stuffed animal, or another item to self-soothe (Carson & Eilers, 2009; Arsenault & Musgrave, 2015, Harlow, 1958). After consideration, the withdrawal design appeared ethically appropriate for this study.

Research Questions

RQ1: Does a pet owner's openness during their teletherapy session increase when their pet dog is in session with them?

RQ2: Can the accompaniment of their pet dog reduce a pet owner's stress during a teletherapy session?

RQ3: Does a pet owner's attachment to their pet dog increase after their pet dog is in a teletherapy session with them?

Hypotheses

H1: The participant's self-assessment of their openness using the Visual Analogue Scale (VAS) for openness will increase when the independent variable, their pet dog, is present in session with them.

H2: The participant's self-assessment of their openness using the Visual Analogue Scale (VAS) for openness will not increase when the independent variable, their pet dog, is present in session with them.

H3: The participant's self-assessment of their stress level using the Visual Analogue Scale (VAS) for stress will decrease when the independent variable, their pet dog, is present in session with them.

H4: The participant's self-assessment of their stress level using the Visual Analogue Scale (VAS) for stress will not decrease when the independent variable, their pet dog, is present in session with them.

H5: The participant's attachment to their pet as measured by the Lexington Pet Scale prior to their first session will increase compared to after their last session when the independent variable, their pet dog, is present in two of the four sessions with them.

H6: The participant's attachment to their pet as measured by the Lexington Pet Scale prior to their first session will not increase compared to after their last session when the independent variable, their pet dog, is present in two of the four-session with them.

Participants and Settings

The inclusion criteria for participants in this study included a minimum age of 18 years old, owning a dog, being a resident of California, and being physically in California at the time of the study. The participant's pet dog was required to be available to join them in two of their teletherapy sessions. If the participant agreed to participate in this study, they need sufficient English language skills to participate without an interpreter. This study included 3 participants of any gender, race, or ethnicity. Each participant was required to provide their access to the technology needed to participate in teletherapy, including internet access and a device with video and audio capability to connect to the internet. Participation was voluntary, and the participant could discontinue involvement at any time. The study's recruitment was solicited through social media, the researcher's network, and the snowball effect.

Potential participants were screened for appropriateness. If any presented with current suicidality, substance dependence, psychotic symptoms, severe self-injury, or neurocognitive impairment, they were excluded from the study. Suitability for participation was also determined by potential participants completing the PHQ-9 and GAD-7 before beginning the study. Participants scoring in the mild to moderate range for anxiety on the PHQ-9 or the mild to moderate range for depression on the GAD-7 met the criteria for inclusion (Cocklin et al., 2017).

Potential participants scoring above the mild to moderate range on either scale, PHQ-9 or GAD-7, were excluded from the study. All potential and actual participants received a list of mental health resources in California after their screening. Emergency services would have been contacted if a potential participant presented with symptomology indicating the immediate need for a higher level of care.

Since familiarity with the therapist could affect a participant's identified stress and openness, none of the participants in this study had a current or prior relationship with the researcher/therapist (Cocklin et al., 2017). After obtaining baseline scores, the participant's openness and perceived stress changes were measured. Measures were taken throughout the study, with final scores being taken at the end of the four phases of treatment. The participants in this study provided subjective reporting on all measures, and the data was used for comparison. Each participant served as their control in the research, and they were compared to themselves (Heppner et al., 2016).

The three-phase theory, a model recognizing the outcome patterns in each phase of psychotherapy treatment, was applied to this study to emphasize early-phase improvement patterns (Rubel et al, 2015; Howard et al.,1993; Horowitz, 2018; Rivera, 1992). The three-phase theory posits that psychotherapy is sequential, with subjective well-being increasing first, then distressing symptoms decreasing, and overall life functioning improving. Frequently, people report significant improvement early in treatment (Howard et al., 1993; Rubel et al., 2015). Countering demoralization through hope, intervention, and support is key to clients reporting improvement.

Instrumentation

Generalized Anxiety Disorder-7 (GAD-7)

The Generalized Anxiety Disorder-7 (GAD-7) screens for anxiety symptoms that occurred and their severity during the two weeks before the screening (Pfizer Incorporated., n.d.). GAD-7 is a seven-item instrument with each response scoring from zero to three. A "0" indicates "not at all," "1" represents "several days," "2" is "more than half the days," and "nearly every day" is scored as a "4." At the end of the measure, a 4-point self-rating scale ranges from "not difficult at all" to "extremely difficult." The is used to self-rate the overall difficulty of the problems scored greater than "0" in questions one through seven.

The total score on the GAD-7 ranges from zero to 21, representing the severity of the anxiety (Pfizer Incorporated., n.d.; Spitzer et al., 2006b). The cutoff points are in five-point increments at five, 10, and 15 scoring totals. After the total score was calculated by adding up the values of the seven items, the anxiety severity was determined. A score in the range of five to nine indicates mild anxiety, 10 to 14 is moderate anxiety, and a score of 15 or higher indicates severe anxiety.

Patient Health Questionnaire-9 (PHQ-9)

The Patient Health Questionnaire-9 (PHQ-9) is a nine-question inventory used to assess depressive symptoms and their severity (Kroenke et al., 1999; Kroenke et al., 2007; Pfizer Incorporated., n.d.). Each question is scored from zero to three. The scores represent the frequency of each of the problem's occurrence over the last two weeks. A "0" represents "not at all," "1" means "several days," "2" represents "more than half the days," and "4" represents "nearly every day." After question 9, the last question on the inventory, there is a 4-point self-rating that ranges from "not difficult at all" to "extremely difficult." The scale is used to rate the

difficulty of the problems if any of the previous nine questions were answered with a rating greater than "0."

After the total score was calculated by adding up the values of the nine items, the severity of the depression was determined (Pfizer Incorporated., n.d.). The severity range is from none to severe depression using cut points every five points in the scoring. A score of five to nine indicates mild depression, 10 to 14 indicates moderate depression, 15 to 19 indicates moderately severe depression, and a score of 20 or more signifies severe depression. Any score below five represents minimal or no depression severity.

Lexington Attachment to Pets Scale (LAPS)

A pet owner's attachment to their dog or cat can be measured using the 23-item Lexington Attachment to Pets Scale (LAPS-23) (Johnson et al., 1992; Ramírez et al., 2014). Each item on this self-report inventory was answered using a four-point Likert scale of 0-3. A "0" response is "strongly disagree," a "1" is "somewhat disagree," a "2" is "somewhat agree," and a "3 is "strongly agree. Two items, "h" and "u," on the measure are coded opposite the others. The highest score on the LAPS is 69, and the lowest score is zero. Permission from the author and publisher was obtained to administer the LAPS for this study.

Visual Analogue Scale (VAS)

The Visual Analogue Scale (VAS) is a scaling method to obtain a self-assessment from an individual at a point in time (Lesage et al., 2012). It has performed as well as the Perceived Stress Scale (PSS). The scale can be displayed as a ruler or number line ranging from zero to a higher value. An example of a typical VAS is a scale from zero to 10. Other ranges can be used, too, such as in a study by Lesage et al. (2012) that used a Stress VAS to measure participants' perceived stress on a scale from 0 to 100.

Self-assessment and subjectivity are not issues as the VAS is a valuable assessment tool in clinical settings and ideal for a SCED study (Lesage et al., 2012). The VAS is based on an individual's self-assessment, making it subjective to the individual. The self-comparison method aligns with the data analysis used in a SCED study (Heppner et al., 2016). The data points gathered in SCED research are used to compare participants to themselves. Another benefit to the VAS is that it is a quick measure that can be taken at multiple points throughout the study phases without much distraction or time commitment from the researcher or participant (Lesage et al., 2012).

Procedures

Before starting this single-case experimental design (SCED) research, the study proposal was submitted to the university's assigned Chair and Reader for review. Once the proposal was successfully defended, the Institutional Review Board (IRB) application was completed and submitted. After receiving complete approval from the IRB, participant recruitment began.

Participation in this study was voluntary throughout its entirety. Potential participants were recruited through social media, the researcher's network, and the snowball effect. All materials and correspondences in this study were provided electronically. Those interested in this study were asked to read the consent form in its entirety and agree or disagree to participate. If the potential participant agreed to participate in this study, they were initially screened for minimum criteria requirements: at least 18 years of age, a California resident, will physically be in California at the time of the study, a dog owner, insurance that their pet dog can join participant in two designated teletherapy sessions, access to technology and equipment allowing participation in teletherapy sessions and sufficient English language skills to participate without an interpreter. The responses were gathered through a series of "yes" or "no" questions asked

verbally by the researcher. If all answers were verbalized as "yes" by the potential participant, they met the minimum screening criteria and continued to the next step.

The next step was the assessment of symptomology and its severity to determine the appropriateness for participation in this study. Potential participants were asked to complete two inventories, Generalized Anxiety Disorder-7 (GAD-7) (Pfizer Incorporated., n.d.; Spitzer et al., 2006b) and Patient Health Questionnaire-9 (PHQ-9), during their scheduled virtual meeting with a clinician. All potential participants were provided with a list of California mental health resources. The completion of inventories and the virtual appointment took approximately 30-40 minutes.

Recruitment remained open until three potential participants met the inclusion criteria for this study. After reviewing the inventory results, if potential participants score above the moderate range on either scale, PHQ-9 or GAD-7, they were excluded from the study. Emergency services would have been contacted if a potential participant presented with symptomology indicating the immediate need for a higher level of care. The participants scored within the mild to moderate range on at least one scale, PHQ-9 or GAD-7; neither score was above the moderate range, meeting the inclusion criteria. After the potential participants met the inclusion criteria, they were asked to complete the Lexington Attachment to Pet Scale (LAPS) (Johnson et al., 1992; Ramírez et al., 2014). The LAPS was used to establish a baseline score for the participant's attachment to their pet dog and was administered again after session four, which was the last session. The participant's demographics were also obtained: age, gender, race, ethnicity, marital status, education level, and occupation. Some information about their pet dog was gathered: the age of their dog and the length of time they have had their pet dog.

Each of the three participants in this study attended a 30-minute individual teletherapy session weekly for four weeks. They participated in the first and third sessions alone. In the second and fourth sessions, they participated with their pet dog. Participants were asked to log in to the teletherapy platform 10 minutes before their appointment time to allow for any login delays or technical problems that may arise. The participant entered a virtual waiting room, and at their appointment time, the researcher connected them to the virtual teletherapy room. This was done to assist with starting at the scheduled time and completing a 30-minute session in each study phase. An additional 10 minutes were allotted after sessions one, two, and three to confirm the participant's next scheduled teletherapy session and make any scheduling changes if needed. The 10 minutes after session four was used for the participants to complete the LAPS. The participant's total time commitment for each session was less than one hour. The teletherapy sessions were based on client-centered therapy and talk therapy practices (Hill, 2009; VanFleet et al., 2019).

The four teletherapy sessions were structured the same way. At the beginning of each session and then every 10 minutes, the participant self-assessed their stress level using the Visual Analogue Scale (VAS) for stress and self-assessed their openness level using the Visual Analogue Scale (VAS) for openness (Lesage et al., 2012). The measures were taken in session at the 0-minute, 10-minute, 20-minute, and 30-minute mark. The researcher set a 10-minute timer to notify the participant when it was time to record their self-assessment of each VAS. The LAPS was completed by participants at the end of session four, which was the last session, and concluded their participation in the study.

Chapter Four: Findings

Overview

This study explored how a pet dog influences its owner's teletherapy experience. The research aimed to understand the impact a pet dog has on its owner's stress levels and their degree of openness during teletherapy sessions compared to the pet owner attending teletherapy sessions alone. Each participant's pet dog joined them in two of the four sessions. Repeated measures of the participant's self-reported stress and openness using visual analogue scales (VAS) provided the research data used for analysis. Several methods were applied to the data analysis to provide an in-depth understanding of the results (Lane & Gast, 2014).

This study built on previous research indicating that a pet can reduce a pet owner's stress and anxiety (Fine, 2019b; Sane & Sawarkar, 2017). There can be a calming effect when an emotional attachment exists between an animal and a human (Amerine & Hubbard, 2016; Friedmann, 2019; Johnson & Bruneau, 2019). The human-animal bond (HAB) can enhance a person's feelings of security and trust. A pet owner's attachment to their pet was examined using the Lexington Attachment to Pet Scale (LAPS) as a pretest/posttest comparison measure to identify any changes in the participant's attachment to their pet dog between the beginning and the end of this study (Johnson et al., 1992; Ramírez et al., 2014).

Descriptive Statistics

Three participants were included in this research, each serving as their control. This study was replicated within each case using an ABAB withdrawal design. Replication was also applied by conducting multiple single-case experiments for case comparisons. Data collected in each case was not combined or collectively analyzed with the other participant data. Each person's results were compared with the other participant's outcomes.

Research participants were recruited through social media, the researcher's network, and the snowball effect. Each potential participant that met the study criteria was invited to participate in this study. Once three participants were recruited and met the study criteria, the recruitment period ended. All three recruitment respondents were female, making 100% of the research participants female. Each participant had a pet dog whose age ranged from one to 10 years old. The participants had owned their pet dogs for one to five years. None of the pet dogs appeared to be the same breed.

During the four phases of this study, the participants self-reported their openness on a scale of zero to 100, with 100 representing the greatest degree of openness. The participant's openness was measured at four points in each of the four teletherapy sessions, with 16 openness data points collected per participant. Table 1 shows the average openness reported by the participants in each phase of the study. The openness scores collected over the four phases were also used to determine the median for each teletherapy session. Table 2 contains the participant openness median for each phase. Each participant's average openness score was equal or nearly equal to their median openness.

Table 1. *Phase Mean for Participant Openness*

	Baseline A_1 Mean	Intervention B_1 Mean	Baseline A_2 Mean	Intervention B_2 Mean
Participant #1	100	91.25	100	95
Participant #2	86.5	76.25	86.25	96.25
Participant #3	90	90	95	90

Table 2. *Phase Median for Participant Openness*

	Baseline A_1 Median	Intervention B_1 Median	Baseline A_2 Median	Intervention B_2 Median
Participant #1	100	92.5	100	100
Participant #2	87.5	75	87.5	97.5
Participant #3	90	90	95	90

The procedures used to assess openness were applied to evaluate the participant's stress during the study phases. The participants self-reported their stress on a scale of zero to 100, with 100 representing the highest stress and zero meaning no stress. Over the four phases of this study, the participant's stress was measured at four points in each phase. There were 16 stress data points collected per participant. The average stress by phase for the three participants is shown in Table 3. The stress median for each participant in Table 4 data follows a similar pattern to participant average stress values.

Table 3. *Phase Mean for Participant Stress*

	Baseline A_1	Intervention B_1	Baseline A_2	Intervention B_2
	Mean	Mean	Mean	Mean
Participant #1	76.5	53.75	55	38.75
Participant #2	62.5	46.25	65	65.75
Participant #3	30	67.5	40	20.5

Table 4. *Phase Median for Participant Stress*

	Baseline A_1	Intervention B_1	Baseline A_2	Intervention B_2
	Median	Median	Median	Median
Participant #1	79	55	55	40
Participant #2	62.5	47.5	66	66.5
Participant #3	30	70	40	20

Results

Hypothesis One

The first alternate hypothesis states that the participant's self-assessment of their openness using the Visual Analogue Scale (VAS) for openness will increase when the independent variable, their pet dog, is present in session with them (Lesage et al., 2012). The VAS range was from zero to 100, with 100 representing the highest level of openness. As shown in Figure 1, the openness data points in every phase were found in the top half of the VAS range, with

participants scoring in the 65-100 range. Through additional visual inspection, each participant's

initial openness score was either 70 or 100. Participant openness was expected to increase during

the intervention phases when their pet dog joined them in session. The initial high openness

scores in the baseline phase left little to no room for an increase in openness.

In Figure 1, participant #1 self-scored 100 at all data points in both baseline phases,

which indicates maximum openness throughout the baselines. In both intervention phases,

participant #1 began with an openness score lower than their baseline scores. Although the

openness scores in the intervention phases started lower than the baselines, the last data point in

both intervention phases was self-scored at 100, which is maximum openness.

Also in Figure 1, participant #2 showed an increase in openness from the first data point

score of 70 in phase A_1 to the final data point score of 100 in phase B_2. Within every phase,

participant #2's openness level increased from the first to the last data point.

Participant #3 scored 90 on all the data points in three of the four phases, as shown in

Figure 1. The four data points in baseline A_2 scored higher than the other phases at 95. There was

no fluctuation in openness scores within each phase. All phases were nearly at the maximum

level of openness.

Figure 1. *Participant's Openness Change*
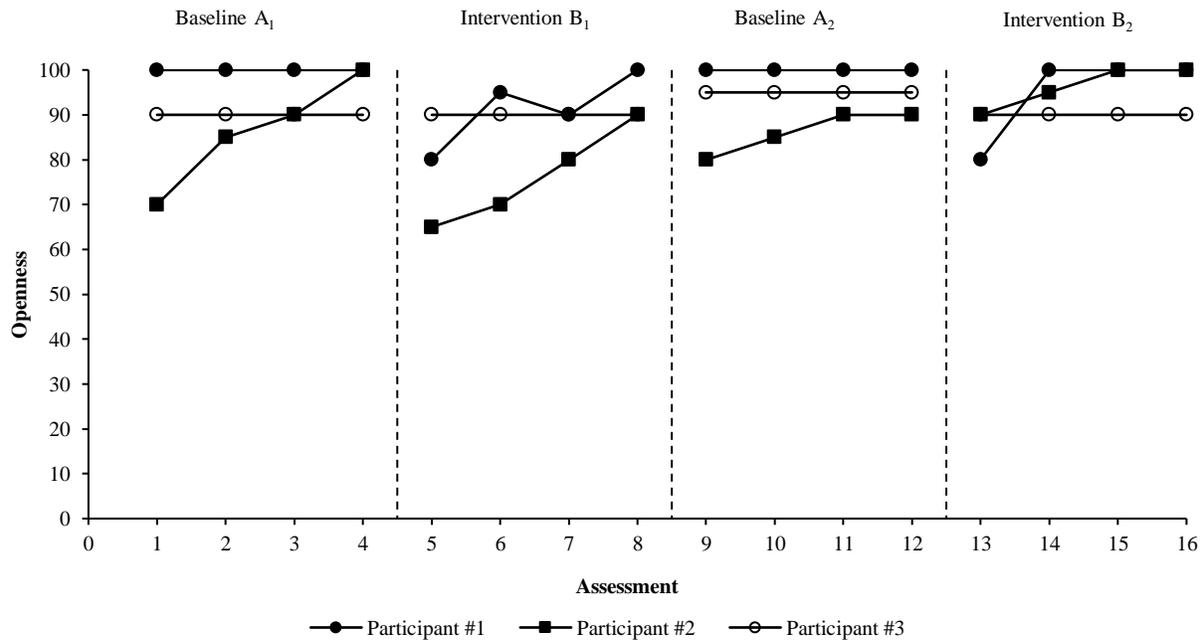
Further examination of the research data was completed by focusing on within-condition analysis to assess the level of change and trend in each baseline phase and intervention phase. The relative level of change is a comparison of the first and second halves of a phase using the median of each half (Lane & Gast, 2014). In Table 5, the openness relative level of change for the first baseline phase and intervention phase is shown for each participant. Table 6 shows the relative level change for the second baseline phase and intervention phase. If the change in openness is a positive number, showing an increase, the relative level of change is improving (Lane & Gast, 2014). When the change value is negative, it represents a decrease in openness and is deteriorating. A zero value means no change in the relative level.

Participant #1 in Table 5 and Table 6 showed no relative level of change in both baseline phases and improvement in both intervention phases. The baseline medians were 100, which is maximum openness. In the intervention phases, first-half medians were less than 100 and increased to 100 or nearly 100 in the second-half median.

The relative level of change for participant #2 was increasing in all phases, as shown in Table 5 and Table 6. In each baseline and intervention, the value was the same. The first A and B phases were 17.5, and the second A and B phases were 7.5. There was no difference in the openness relative level change when the participant's pet dog was with them in teletherapy.

In Table 5 and Table 6, participant #3 demonstrated zero relative level change in all phases. Their median values were nearly equal in every phase. Openness relative level change did not increase within any of the phases.

Table 5. *Participant Openness Relative Level Change within A_1 and B_1*

	Baseline A_1 Median 1st half	Baseline A_1 Median 2nd half	**Relative Level Change Phase A_1**	Intervention B_1 Median 1st half	Intervention B_1 Median 2nd half	**Relative Level Change Phase B_1**
Participant #1	100	100	**0**	87.5	95	**+7.5**
Participant #2	77.5	95	**+17.5**	67.5	85	**+17.5**
Participant #3	90	90	**0**	90	90	**0**

Table 6. *Participant Openness Relative Level Change within A_2 and B_2*

	Baseline A_2 Median 1st half	Baseline A_2 Median 2nd half	**Relative Level Change Phase A_2**	Intervention B_2 Median 1st half	Intervention B_2 Median 2nd half	**Relative Level Change Phase B_2**
Participant #1	100	100	**0**	90	100	**+10**
Participant #2	82.5	90	**+7.5**	92.5	100	**+7.5**
Participant #3	95	95	**0**	90	90	**0**

The openness level change was also evaluated with the absolute level change method. The results are shown in Table 7 and Table 8. Instead of using the median of each phase half for comparison, like the relative level change, the absolute level change compares the first data point of a phase to the last data point of a phase (Lane & Gast, 2014). All phases with improvement in relative level change also showed an improvement in absolute level change. The phases that demonstrated no change, continued to demonstrate no change using the absolute level change method. Although the results are similar to the relative level change outcomes, a notable

difference is the absolute level change values denote a larger change within the phases that improved. This indicates a greater increase in openness between the first and last data points in each phase compared to the phase half-medians.

Table 7. *Participant Openness Absolute Level Change within A_1 and B_1*

	Baseline A_1 First Data Point	Baseline A_1 Last Data Point	**Absolute Level Change Phase A_1**	Intervention B_1 First Data Point	Intervention B_1 Last Data Point	**Absolute Level Change Phase B_1**
Participant #1	100	100	**0**	80	100	**+20**
Participant #2	70	100	**+30**	65	90	**+25**
Participant #3	90	90	**0**	90	90	**0**

Table 8. *Participant Openness Absolute Level Change within A_2 and B_2*

	Baseline A_2 First Data Point	Baseline A_2 Last Data Point	**Absolute Level Change Phase A_2**	Intervention B_2 First Data Point	Intervention B_2 Last Data Point	**Absolute Level Change Phase B_2**
Participant #1	100	100	**0**	80	100	**+20**
Participant #2	80	90	**+10**	90	100	**+10**
Participant #3	95	95	**0**	90	90	**0**

The final within-condition analysis performed was the trend estimation for openness using the split-middle method (Lane & Gast, 2014). After dividing each phase in half, the mid-date and mid-rate were identified for each phase half. A line was inserted to run through the intersection of mid-date and mid-rate for the first half of a phase and for the second half of the same phase creating the trend estimation line. Figure 2 shows the openness trend estimation by phase for participant #1. The trend for each baseline indicates no change with zero range. All the data point values in the baseline phases are the same, causing the trend lines and the data point lines to overlap. The intervention phases have accelerating trends within each phase. Each intervention phase has a range of 20.

Figure 2. *Participant #1: Openness Trend*
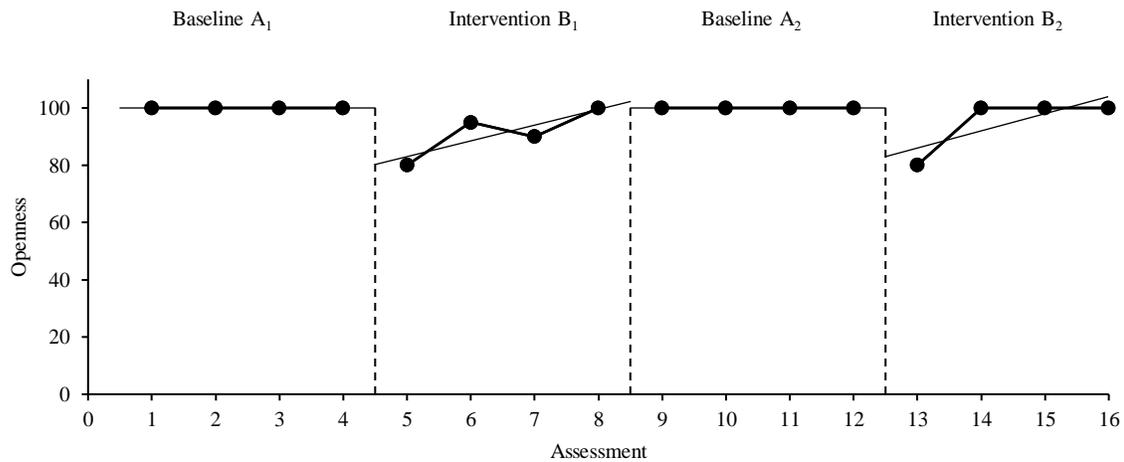
The openness trend estimations for participant #2 are illustrated in Figure 3. The split-middle method indicates an accelerating trend in all phases. The slope of the trendline in the first baseline and first intervention are similar, although the range is different in each phase. The range for A_1 is 30 and B_1 is 25. Baseline A_2 and intervention B_2 also have similar slopes, and both phases have a range of 10.

Figure 3. *Participant #2: Openness Trend*
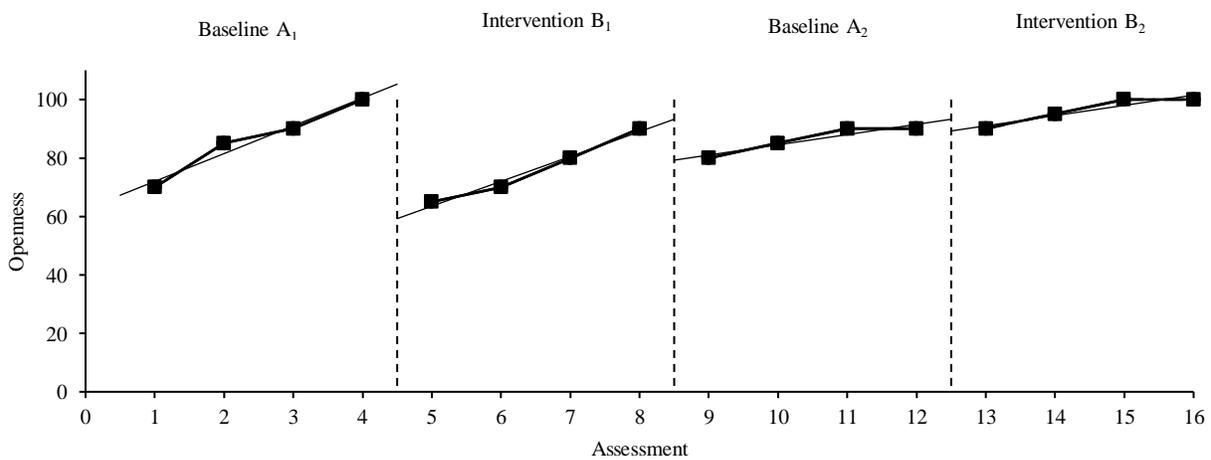
In Figure 4, the openness trend for participant #3 indicates an estimation of no change in all phases. The trend line and the data point line overlap in each phase, which makes it difficult to visually differentiate the two. The range in every phase is zero.

Figure 4. *Participant #3: Openness Trend*
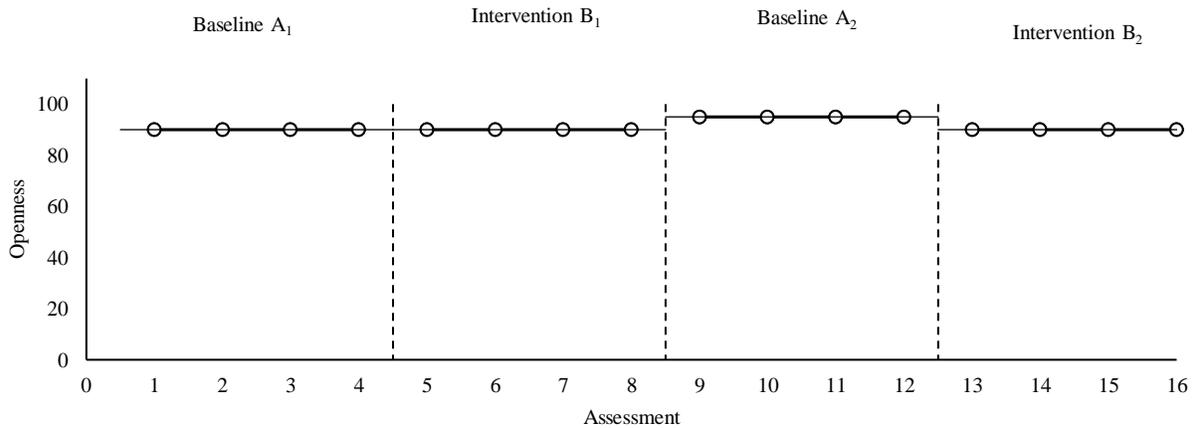
Following the analysis of within-conditions of each phase, the baseline and intervention phases were compared to each other using a between-condition analysis for each participant. Participant openness changes between A and B phases were identified using relative level change, absolute level change, mean level change, and median level change methods (Lane & Gast, 2013). Each level change analysis method provides a unique comparison of the baseline and intervention phases. Taking into consideration the level change results offered a more complete assessment of the changes across conditions since each method has potential limitations.

Relative level change between phases compares the second half of the baseline median to the first half of the intervention median (Lane & Gast, 2013). This method provided information about participant openness using the adjacent halves of the data in each phase. A relative level change between A and B phases that was a positive value indicated improving openness, a negative value shows deteriorating openness, and zero indicates no change.

In Table 9, participant #1 demonstrated a deteriorating change in both AB comparisons. Participant #2 shows a decrease in openness in the first AB relative level change and a slight

improvement in the second AB comparison. There was little to no openness relative level change

between A and B phases for participant #3.

Table 9. *Participant Openness Relative Level Change between A and B Phases*

	Intervention B_1 Median 1st half	Baseline A_1 Median 2nd half	**Relative Level Change A_1 to B_1**	Intervention B_2 Median 1st half	Baseline A_2 Median 2nd half	**Relative Level Change A_2 to B_2**
Participant #1	87.5	100	**-22.5**	90	100	**-10**
Participant #2	67.5	95	**-27.5**	92.5	90	**+2.5**
Participant #3	90	90	**0**	90	95	**-5**

The last data point in a baseline phase was compared to the first data point in the adjacent

intervention phase to determine the absolute level change between phases (Lane & Gast, 2013).

The immediacy of change was reflected by the absolute change between conditions values. A

negative value indicated a deteriorating change in openness, which is shown in Table 10. Also

shown is zero change for participant #2 and participant #3 between one of their A and B phases.

None of the participants had an improving openness absolute level change result.

Table 10. *Participant Openness Absolute Level Change between A and B Phases*

	Intervention B_1 First Data Point	Baseline A_1 Last Data Point	**Absolute Level Change A_1 to B_1**	Intervention B_2 First Date Point	Baseline A_2 Last Data Point	**Absolute Level Change A_2 to B_2**
Participant #1	80	100	**-20**	80	100	**-20**
Participant #2	65	100	**-35**	90	90	**0**
Participant #3	90	90	**0**	90	95	**-5**

The mean level change for openness was determined by calculating the mean of each

phase and comparing a baseline mean to the proceeding intervention phase (Lane & Gast, 2013).

The data points for each participant did not contain outliers in any phases. If there had been

outliers, the mean value could be skewed. As shown in Table 11, participant #2 had the only

improving openness mean level change. All other mean level changes for the participants were

either deteriorating or showed no change.

Table 11. *Participant Openness Mean Level Change between A and B Phases*

	Intervention B_1 Mean	Baseline A_1 Mean	**Mean Level Change A_1 to B_1**	Intervention B_2 Mean	Baseline A_2 Mean	**Mean Level Change A_2 to B_2**
Participant #1	91.25	100	**-8.75**	95	100	**-5**
Participant #2	76.25	86.25	**-10**	96.25	86.25	**+10**
Participant #3	90	90	**0**	90	95	**-5**

To determine the openness median level change, the medians were compared between A and B phases (Lane & Gast, 2013). This is a preferred calculation over the mean level change method if a phase contains an outlier. Although outliers were not an issue in these data sets, multiple measures can enhance data interpretation. As shown in Table 12, each participant had one phase comparison that was found to deteriorate. Participant #1 and participant #3 also had an openness median level change resulting in no change. Participant #2's second A and B phase was the only one that showed improved openness using the median level change method.

Table 12. *Participant Openness Median Level Change between A and B Phase*

	Intervention B_1 Median	Baseline A_1 Median	**Median Level Change A_1 to B_1**	Intervention B_2 Median	Baseline A_2 Median	**Median Level Change A_2 to B_2**
Participant #1	92.5	100	**-7.5**	100	100	**0**
Participant #2	75	87.5	**-12.5**	97.5	87.5	**+10**
Participant #3	90	90	**0**	90	95	**-5**

The percent of non-overlap data (PND) method was applied to the openness level for each participant. The PND compares the data points in the first A and B phase to each other and then compares the second A and B phase (Parker et al., 2014). To determine the phase contrast, PND compares the highest or lowest score from the A phase to the B phase data points. If an increased score during the intervention phase indicates effectiveness, then the highest score from the baseline is used to compute the PND (Ma, 2006). If a decreased score during the

intervention phase represents effectiveness, then the lowest baseline score is used in each AB

comparison when determining the PND.

As seen in Figure 5, participant #1 self-reported 100 for openness in phases A_1 and A_2,

creating a ceiling effect (Scruggs et al., 1987). Since a self-assessment of 100 is the highest

possible score, there was no possible B phase score higher than 100. This resulted in all PND

scores for participant #1 being 0% due to none of the intervention scores exceeding the highest

score in each baseline phase. A PND score below 50% represents the intervention having no

effect (Ma, 2006; Parker et al., 2014; Rakap, 2015). The PND analysis for participant #1

indicated that the intervention did not improve the participant's openness. A floor or ceiling

effect in the baseline phases interferes with computing the intervention's effect size with the

PND method (Ma, 2006; Rakap, 2015).

Figure 5. *Participant #1: Percentage of Non-overlapping Data (PND) for Openness*
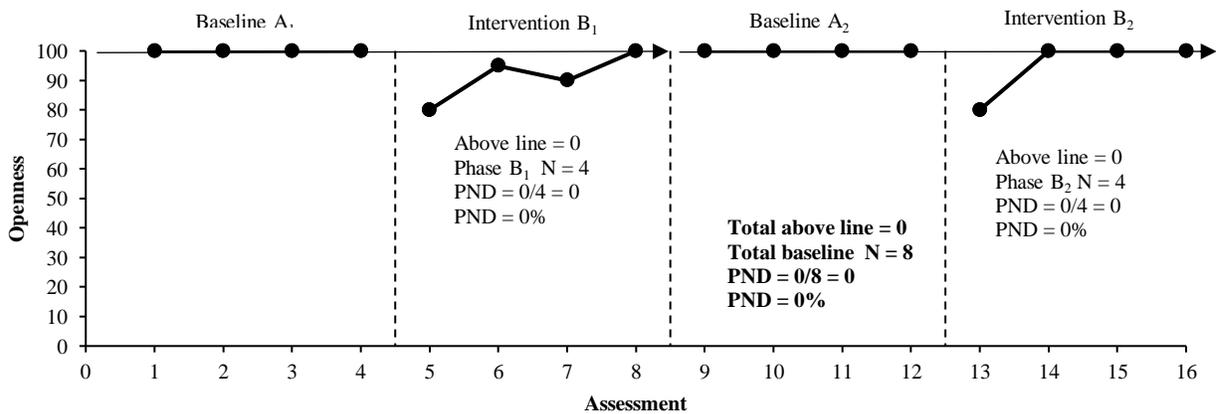
The openness PND for participant #2, shown in Figure 6, indicates one of the reported

scores for A_1 was 100. This resembles what occurred in determining the PND for participant #1,

although participant #2's data set looks different. All A_1 data points for Participant #1 were 100,

whereas participant #2 had one A_1 data point of 100. Since the highest value is used when

calculating the PND for openness, it did not matter if one or all the baseline scores were 100; the

result is the same since no score could be higher than 100. Like participant #1, the PND for

participant #2 in the first AB phase was 0% due to the ceiling effect (Ma, 2006). However, in the

A_2 to B_2 comparison, the PND for participant #2 was 75%. A PND score over 70% is interpreted

as an effective intervention (Ma, 2006; Parker et al., 2014). The overall PND for participant #2,

which includes both phase contrasts, equaled 37.5%. Since the total PND fell below 50%, the

general intervention was interpreted as ineffective, although their second AB comparison

indicated intervention effectiveness.

Figure 6. *Participant #2 Percentage of Non-overlapping Data (PND) for Openness*
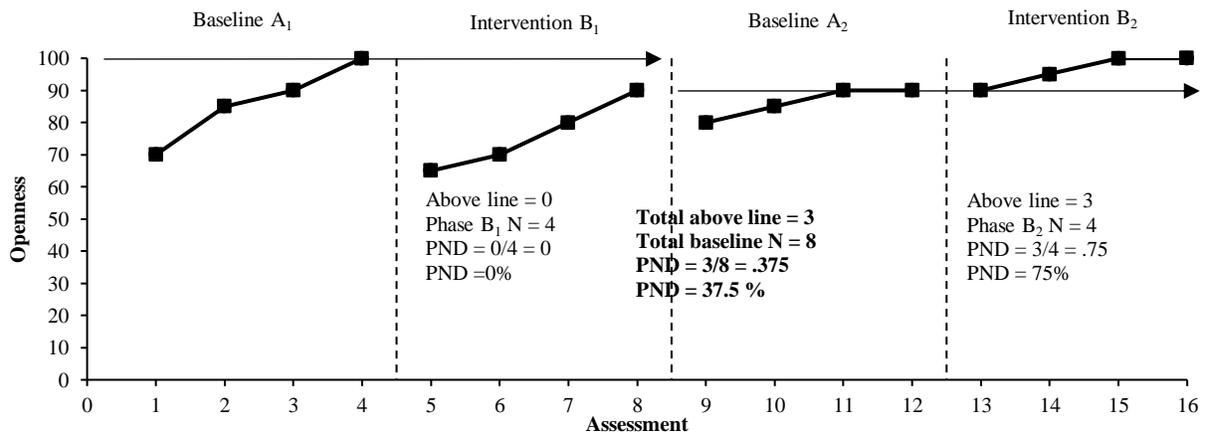
The openness scores self-reported by participant #3 had no variability within each phase,

as shown in Figure 7. Three of the four phases had data sets that included scores of 90. A

difference was found between phases A_2 and B_2, with the A_2 scores being 95 and the B_2 scores

being 90. In both AB phase contrasts, the PND for openness was 0%. The openness scores

reported by participant #3 were close to the 100-score ceiling in all the phases, leaving little

room for improvement. The PND analysis indicated that the intervention did not increase

participant #3's openness (Ma, 2006; Parker et al., 2014).

Figure 7. *Participant #3: Percentage of Non-overlapping Data (PND) for Openness*
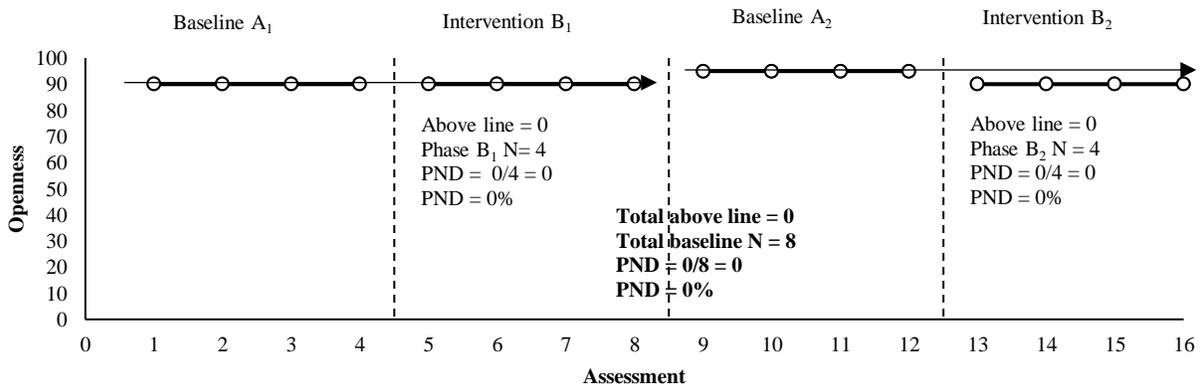
Another non-overlap measure applied to the data in this study examined participant openness using the percentage of data exceeding the median (PEM) (Parker et al., 2014). PEM uses the baseline median, unlike PND which uses the best baseline score for AB pairwise comparisons. When using baseline phase medians, all the values in the A phase are accounted for in the comparison, not just one data point (Ma, 2006). The PEM measure gives weight to all the baseline scores. When the data points within each baseline phase have the same value, as seen in Figure 8 for participant #1, there is no difference between the PND and PEM results due to the baseline median and baseline highest value being equal. The PEM for participant #1 was 0%, indicating the intervention had no effect on their self-reported openness level (Sen & Sen, 2019).

Figure 8. *Participant #1. Percentage Exceeding Median (PEM) for Openness*
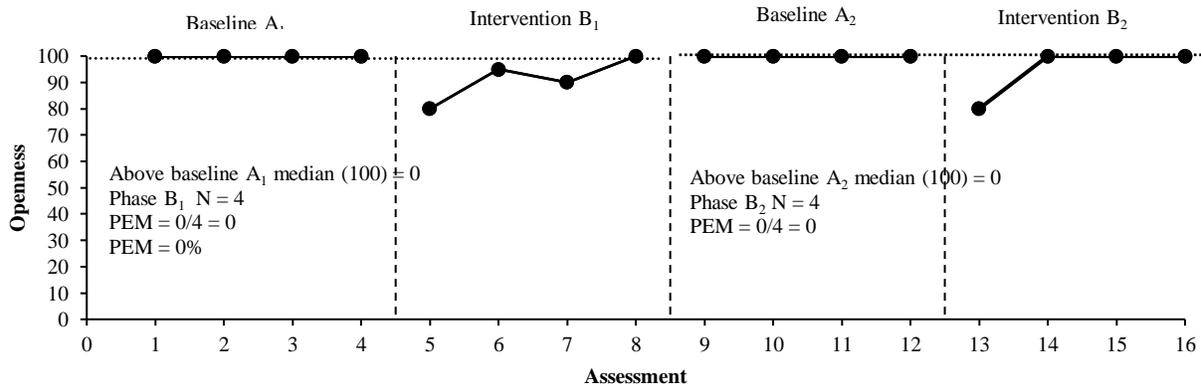
Participant #2's first AB comparison, shown in Figure 9, demonstrated a PEM of 25% for

openness; the same AB comparison for participant #2 had a PND for openness equaling 0%. A

PEM or PND score under 50% signifies intervention ineffectiveness (Ma, 2006; Parker et al.,

2014; Sen & Sen, 2019). In the second AB comparison for participant #2, 100% of the B_2

intervention phase scores were above the A_2 median, indicating a very effective intervention.

The visual inspection of Figure 9 illustrates phase B_2 intervention effectiveness for participant

#2.

Figure 9. *Participant #2: Percentage Exceeding Median (PEM) for Openness*
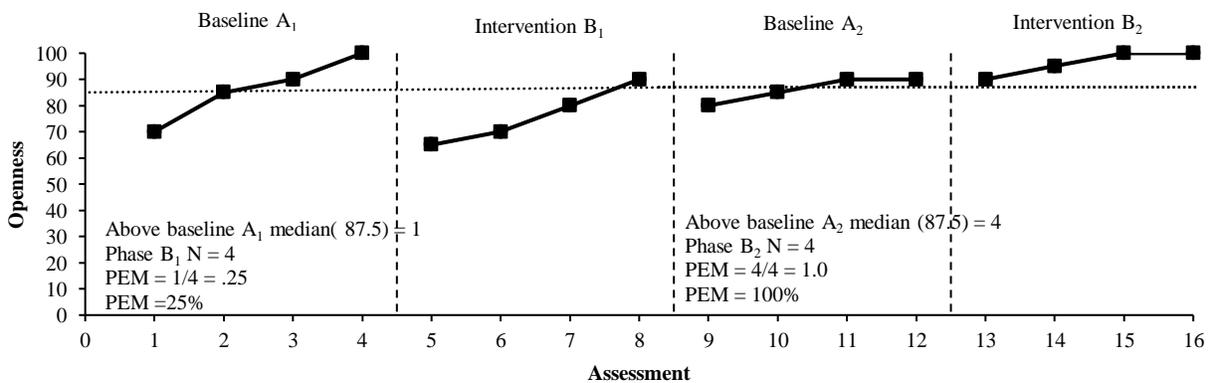
Participant #3 had no variability in their openness data points within each phase, as

shown in Figure 10. The baseline median used in the PEM and the baseline highest score used in

the PND was the same. Baseline A_1 had a median and a high score of 90; for baseline A_2, the

median and the high score were 95. The PEM analysis had the same results as the PND, which

indicated that the intervention had no effect on participant #3's openness level (Ma, 2006; Parker

et al., 2014; Sen & Sen, 2019).

Figure 10. *Participant #3: Percentage Exceeding Median (PEM) for Openness*
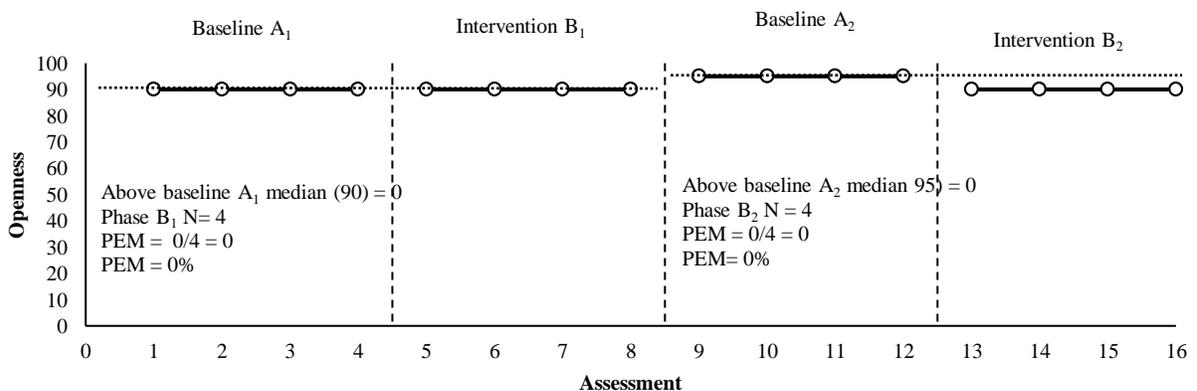
Hypothesis Two

The second alternate hypothesis states that the participant's self-assessment of their stress

level using the Visual Analogue Scale (VAS) for stress will decrease when the independent

variable, their pet dog, is in session with them (Lesage et al., 2012). The scoring on the VAS

ranged from zero to 100, with 100 being the highest. Using a VAS, participants were asked to

self-score their stress levels four times in each phase. A higher score represents higher stress. In

Figure 11, the three participants showed a final stress score in phase B_2 lower than their initial

stress score in phase A_1. Participant #1 had an initial stress score of 98 and a final score of 30.

Participant #2 initially scored 65, and their final stress score was 60. Participant #3 had an initial

stress score of 30; their final score was 22.

Figure 11. *Participant's Stress Change*
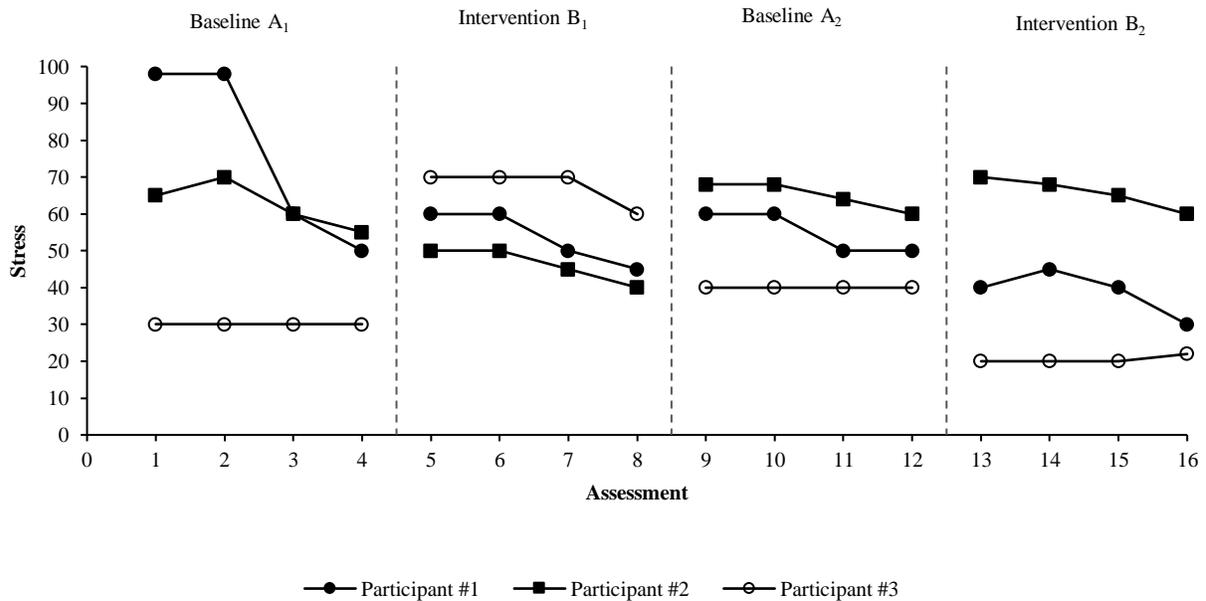
Application of within-condition analysis was used to assess the level change and trend in each phase (Lane & Gast, 2014). Participants' relative level change and absolute level change for stress were calculated within each condition. A negative level change value indicates a decrease in stress within the identified phase and improvement. Phasal stress trends were also examined.

Within each condition, the medians of each half were compared to determine the relative level of change within the condition (Lane & Gast, 2014). Participant #1 and participant #2 demonstrated a decrease in their stress relative level change in all phases as shown in Table 13 and Table 14. A decrease is considered improving. Both participants #1 and #2 were also found to have the greatest decrease in stress within the first baseline phase when using the relative level change method. In Table 13 and Table 14, participant #3 showed no relative level change in baseline stress scores. The intervention phases for participant #3 had a decrease of 5 in the first intervention phase and an increase of 1 in the second intervention phase. An increase in the relative level change is a deteriorating change (Lane & Gast, 2014).

Table 13. *Participant Stress Relative Level Change within A_1 and B_1*

	Baseline A_1 Median 1st half	Baseline A_1 Median 2nd half	**Relative Level Change Phase A_1**	Intervention B_1 Median 1st half	Intervention B_1 Median 2nd half	**Relative Level Change Phase B_1**
Participant #1	98	55	**-43**	60	47.5	**-12.5**
Participant #2	67.5	57.5	**-10**	50	42.5	**-7.5**
Participant #3	30	30	**0**	70	65	**-5**

Table 14. *Participant Stress Relative Level Change within A_2 and B_2*

	Baseline A_2 Median 1st half	Baseline A_2 Median 2nd half	**Relative Level Change Phase A_2**	Intervention B_2 Median 1st half	Intervention B_2 Median 2nd half	**Relative Level Change Phase B_2**
Participant #1	60	50	**-10**	42.5	35	**-12.5**
Participant #2	68	62	**-6**	69	62.5	**-6.5**
Participant #3	40	40	**0**	20	21	**+1**

The absolute level change was used to assess the within-condition stress change in every baseline and intervention phase for each participant. The absolute level change compared the first data point in a phase to the last data point in the same phase (Lane & Gast, 2014). Table 15 and Table 16 show a decrease in the stress absolute level change for participant #1 and participant #2 in all conditions. A decrease indicated improving stress levels within each phase. Every phase had a decrease in stress for participants #1 and #2 using the relative level change method, too.

In Table 15 and Table 16, the stress absolute level change for participant #2 was the same in their first baseline phase and both intervention phases. These three phases had a value of -10 which indicates improving stress amount. Participant # 3 had no stress level change in the baseline phases as shown in Table 15 and Table 16. Participant #3's stress was shown to be improving in the first intervention phase and deteriorating in the second intervention phase.

Table 15. *Participant Stress Absolute Level Change within A$_1$ and B$_1$*

	Baseline A$_1$ First Data Point	Baseline A$_1$ Last Data Point	**Absolute Level Change Phase A$_1$**	Intervention B$_1$ First Data Point	Intervention B$_1$ Last Data Point	**Absolute Level Change Phase B$_1$**
Participant #1	98	50	**-48**	60	45	**-15**
Participant #2	65	55	**-10**	50	40	**-10**
Participant #3	30	30	**0**	70	60	**-10**

Table 16. *Participant Stress Absolute Level Change within A$_2$ and B$_2$*

	Baseline A$_2$ First Data Point	Baseline A$_2$ Last Data Point	**Absolute Level Change Phase A$_2$**	Intervention B$_2$ First Data Point	Intervention B$_2$ Last Data Point	**Absolute Level Change Phase B$_2$**
Participant #1	60	50	**-10**	40	30	**-10**
Participant #2	68	60	**-8**	70	60	**-10**
Participant #3	40	40	**0**	20	22	**+2**

The stress trend estimation for each participant using the split-middle method was used to identify stress trends within the baseline and intervention phases (Lane & Gast, 2014). A trend estimation line was inserted in each phase by dividing each phase in half, then identifying the mid-date and mid-rate for each phase half. By running a line through the intersection of mid-date and mid-rate for the first half of a phase and for the second half of the same phase, the trend estimation line was created. A decelerating trend represents a positive or therapeutic trend since the intervention is expected to decrease participant stress (Lane & Gast, 2014; Ray, 2015).

The stress trend for participant #1 is shown in Figure 12. The trend estimation line in each phase illustrates a positive trend in all phases (Lane & Gast, 2014; Ray, 2015). The first baseline phase has a more accelerated trend line than the other phases. The intervention phases and the second baseline phase have similar ranges and variability. Baseline A$_1$ has a 48 range, and baseline A$_2$ has a 10 range. Each intervention phase has a 15 range.

Figure 12. *Participant #1: Stress Trend*
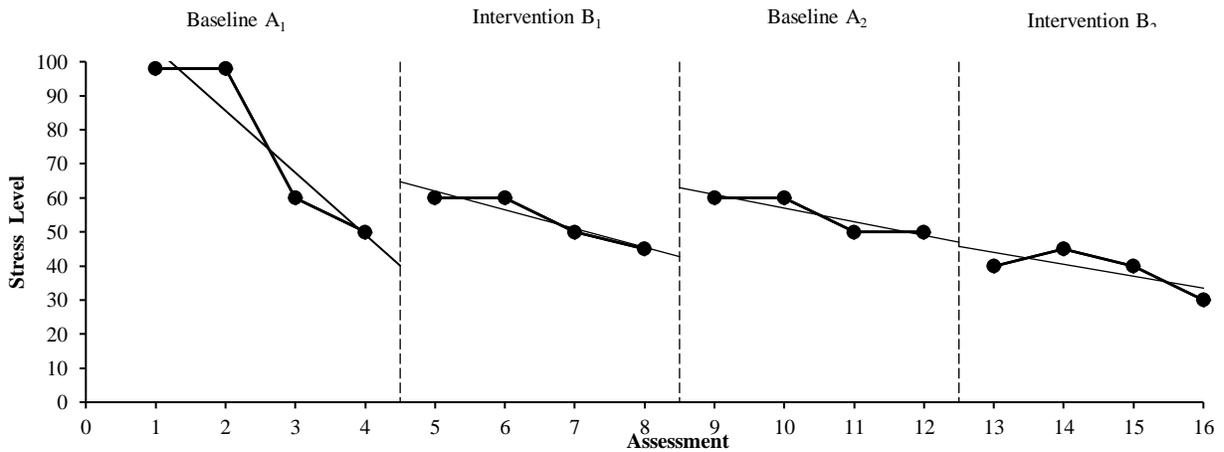
As shown in Figure 13, the stress trend estimations for participant #2 are decelerating within each phase. In the first A and B phases, the trendline in the baseline nearly lines up with the intervention phase trendline as the trend continues in a therapeutic direction (Kazdin, 2011; Lane & Gast, 2014). The data range for A_1 is 15 and B_1 is 10. The second baseline and intervention have similar trendlines with minimal difference. The data in baseline A_2 has an 8 range and intervention B_2 has a 10 range.

Figure 13. *Participant #2: Stress Trend*
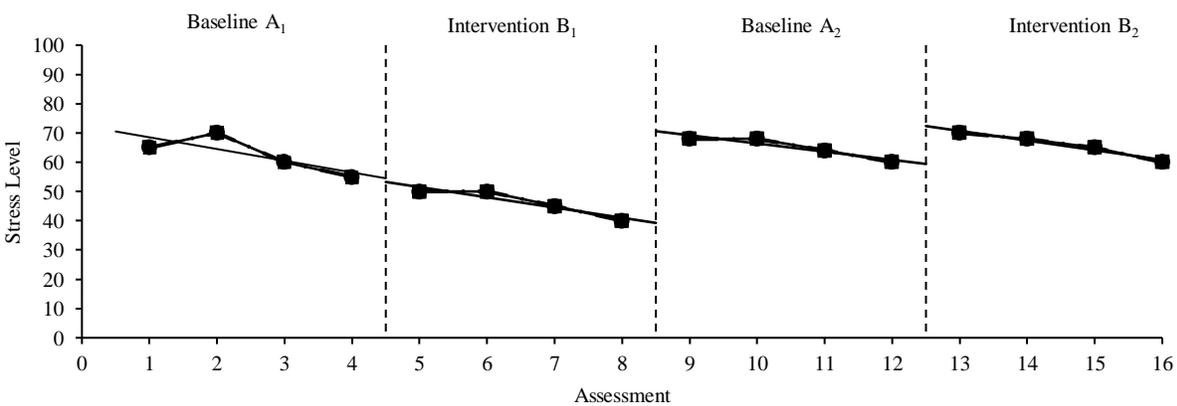
The stress trend estimation for participant #3 shows no change within the baseline phases shown in Figure 14 (Lane & Gast, 2014). The overlapping trend line and the data point line in

the baseline phases make it difficult to visually differentiate the two. The range in the baseline

phases is zero and a zero-celerating trend. Intervention B_1 illustrates a decelerating trend with

decreased stress shown in the last data point of the phase. The range for B_1 is 10. This

intervention phase also contains the highest stress scores out of all the stress scores for

participant #3. Intervention B_2 had a slight increase in stress reported in the last data point

implying an accelerating trend. However, the data points in phase B_2 indicate lower stress than

any of participant #3's other stress data points. The range for B_2 is 2.

Figure 14. *Participant #3: Stress Trend*
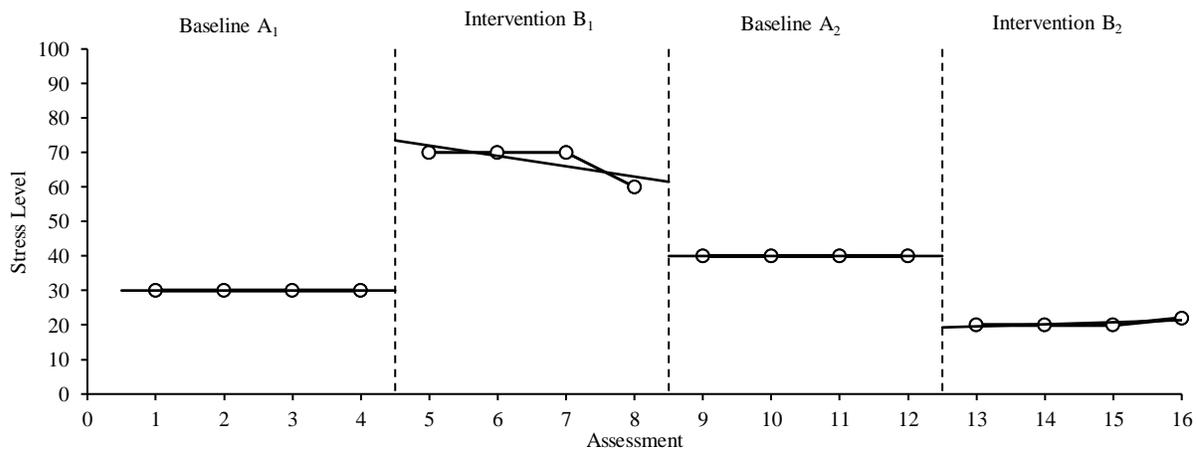
Between-condition analysis was used to examine each participant's reported stress during

the baseline phase compared to the proceeding intervention phase (Lane & Gast, 2014). The

methods applied were relative level change, absolute level change, mean level change, and

median level change methods. The use of multiple methods to evaluate the level change between

conditions provided a more thorough analysis due to possible limitations of the methods.

The first between-condition method applied to the stress data was relative level change.

This method compares the median of the baseline phase's second half to the first half of the

intervention phase median (Lane & Gast, 2013). The adjacent phase halves provide information

about changes in stress between a baseline and intervention. For this analysis, an increase in the

relation level change indicates the participant's stress is higher in the first half median of the intervention than the second half median of the baseline phase and the stress level is deteriorating. A decrease in the relative level change indicates that the stress level is improving. If the relative level change is zero, then no change is found.

In Table 17, all participants demonstrated a deteriorating stress change in the one AB comparison and an improving stress change in the other AB comparison. Participants #1 and #3 had decreased stress in the second AB comparison. Participant #2 showed a decrease in the first AB comparison. The relative level changes for participant #3 were considerably larger than the other two participants.

Table 17. *Participant Stress Relative Level Change between A and B Phases*

	Intervention B_1 Median 1st half	Baseline A_1 Median 2nd half	**Relative Level Change A_1 to B_1**	Intervention B_2 Median 1st half	Baseline A_2 Median 2nd half	**Relative Level Change A_2 to B_2**
Participant #1	60	55	**+5**	42.5	50	**-7.5**
Participant #2	50	57.5	**-7.5**	69	62	**+7**
Participant #3	70	30	**+40**	20	40	**-20**

The absolute level change between-conditions analysis was used to compare the last data point in the baseline phase to the first data point of the adjacent intervention phase. There was little or no difference between the relative level change and the absolute level change outcomes for all the participants. Each participant had an improving change in on AB phase and a deteriorating change in the other AB phase as shown in Table 18.

Table 18. *Participant Stress Absolute Level Change between A and B Phases*

	Intervention B_1 First Data Point	Baseline A_1 Last Data Point	**Absolute Level Change A_1 to B_1**	Intervention B_2 First Date Point	Baseline A_2 Last Data Point	**Absolute Level Change A_2 to B_2**
Participant #1	60	50	**+10**	40	50	**-10**
Participant #2	50	55	**-5**	70	60	**+10**
Participant #3	70	30	**+40**	20	40	**-20**

Since the mean level change uses the average of the data points in each phase for the AB comparison, the mean value is influenced by all data points in the phase (Lane & Gast, 2013). The mean value has the possibility of being skewed by outliers. The stress data for each participant in this study did not contain outliers, so this was not an issue. Participant #1 demonstrated improving mean level changes in both AB comparisons as shown in Table 19. Participants #2 and #3 had an improving change in one AB phase and a deteriorating change in the one AB phase.

Table 19. *Participant Stress Mean Level Change between A and B Phases*

	Intervention B_1 Mean	Baseline A_1 Mean	**Mean Level Change A_1 to B_1**	Intervention B_2 Mean	Baseline A_2 Mean	**Mean Level Change A_2 to B_2**
Participant #1	53.75	76.5	**-22.75**	38.75	55	**-16.25**
Participant #2	46.25	62.5	**-16.25**	65.75	65	**+.75**
Participant #3	67.5	30	**+37.5**	20.5	40	**-19.5**

The stress median level change between phases was used to compare the medians of the first A and B phases then used to compare the medians of the second A and B phases (Lane & Gast, 2013). The median level change method is ideal over the mean level change method when data within a phase contains outliers. This data did not contain phase outliers, but the median level change method was still applied to better interpret the data. Participant #1 showed decreased stress in both AB median stress level comparisons as shown in Table 20. Participants #2 and #3 had an improving change in one AB phase and a deteriorating change in one AB phase.

Table 20. *Participant Stress Median Level Change between A and B Phases*

	Intervention B_1 Median	Baseline A_1 Median	**Median Level Change A_1 to B_1**	Intervention B_2 Median	Baseline A_2 Median	**Median Level Change A_2 to B_2**
Participant #1	55	79	**-24**	40	55	**-15**
Participant #2	47.5	62.5	**-15**	66.5	66	**+.5**
Participant #3	70	30	**+40**	20	40	**-20**

The percent of non-overlap data (PND) was applied to the stress data for each participant. To determine the PND, the lowest baseline data point in phase A_1 was compared to all the data points in phase B_1 to determine the B_1 intervention scores lower than the lowest A_1 baseline score (Parker et al., 2014). The same analysis was completed by comparing phase A_2 and phase B_2. In this study, lower stress scores in the intervention phases support the effectiveness of the participant's pet dog accompanying them in teletherapy.

Half of the A_1 scores for participant #1 were nearly at the maximum stress level as shown in Figure 15. The lowest A_1 score of 50 was used for phase comparison; one out of four phase B_1 scores was below 50. The PND for the first AB comparison was 25%. The second AB comparison resulted in a PND of 100%. A PND percentage below 50% indicates that an intervention effect was not observed, and if it is above 70%, the intervention is interpreted as effective (Parker et al., 2014; Ma, 2006). The total PND for participant #1 was below 70%, but since it was above 50%, the overall intervention effectiveness is in the questionable range with a mild effect.

Figure 15. *Participant #1: Percentage of Non-overlapping Data (PND) for Stress*
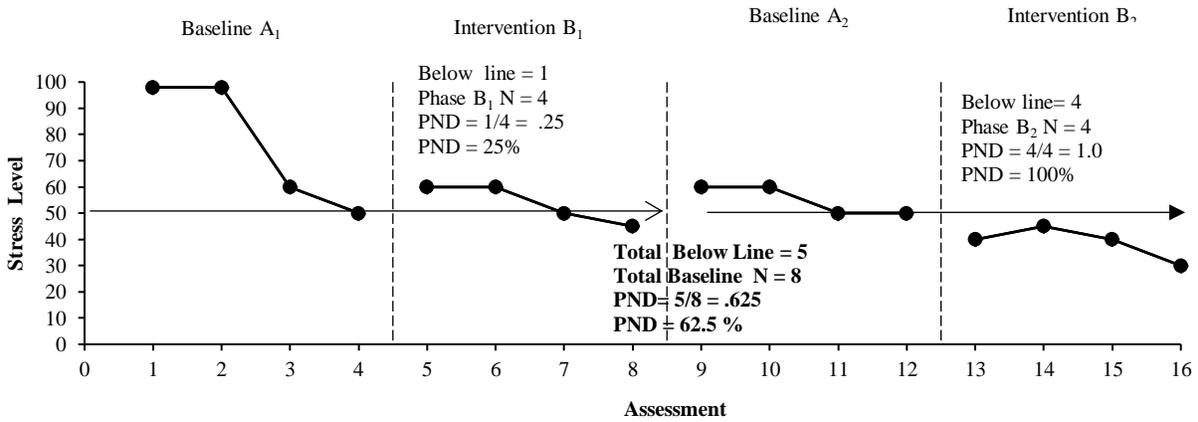
Participant #2 had the lowest stress scores in the first intervention phase, as seen in

Figure 16. The PND for the A_1 and B_1 comparison was 100%, meaning that the intervention was

highly effective (Ma, 2006). In the second phase comparison, the A_2 and B_2 stress scores were

nearly identical in both the baseline and intervention. The PND for the second comparison was 0,

indicating the intervention had no observable effect. The overall intervention effect on

decreasing stress was 50% due to the first AB comparison having 100% PND and the second

having 0% PND. The overall intervention effect is mild and questionable (Ma, 2006; Parker et

al., 2014).

Figure 16. *Participant #2: Percentage of Non-overlapping Data (PND) for Stress*
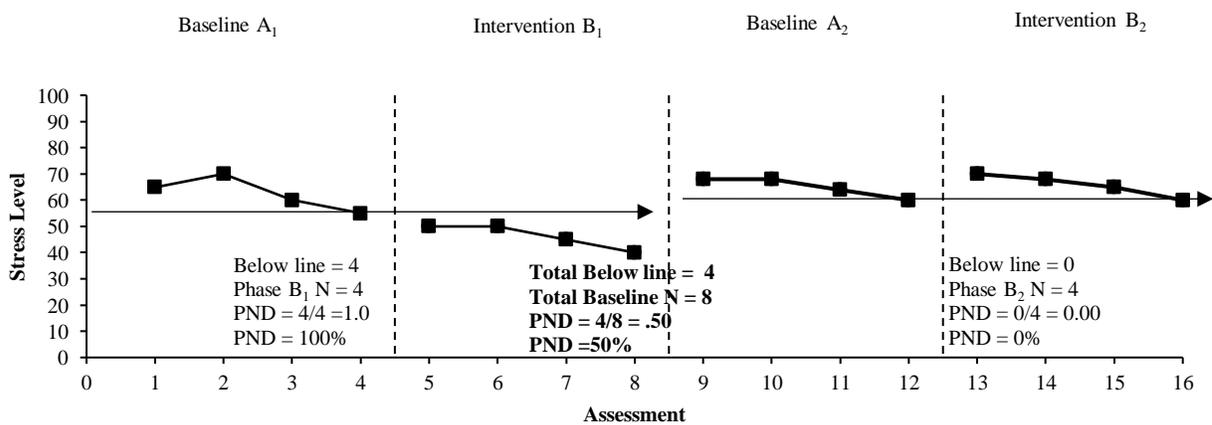
The stress scores for participant #3 did not fluctuate within the baseline phases or the first

intervention phase B_1 as shown in Figure 17. The second intervention phase had the lowest

scores and a slight increase in stress at the end of the phase. The PND for the first AB

comparison indicated that the intervention had no effect, with none of the intervention data

points having a lower score than the lowest baseline score (Parker et al., 2014; Ma, 2006). The

second comparison was between baseline A_2 and intervention B_2. All stress scores in

intervention phase B_2 were below the lowest score in baseline phase A_2 resulting in a 100% PND

and indicating a highly effective intervention (Ma, 2006). Since the first comparison had 0%

PND and the second one had 100% PND, the overall PND was 50%, meaning the intervention's

effectiveness is mild and questionable (Parker et al., 2014; Ma, 2006). Participant #3 had the

same overall PND score as participant #2, although the participants' graphed stress scores were

not similar.

Figure 17. Participant #3: Percentage of Non-overlapping Data (PND) for Stress
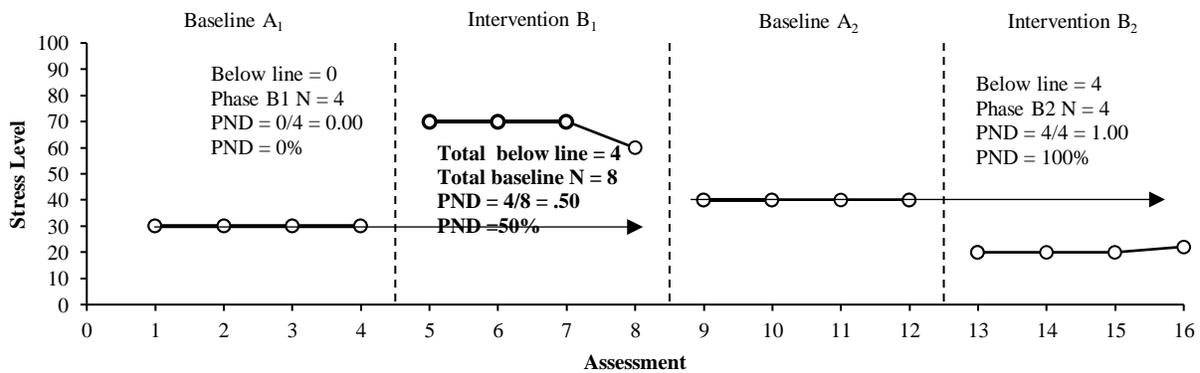

The second non-overlap measure applied to the stress data in this study was the

percentage of data exceeding the median (PEM). The PEM uses the baseline phase median for

each AB pairwise comparison to determine the percentage of intervention data points below the

middle score in the baseline phase (Parker et al., 2014; Sen & Sen, 2019; Ma, 2006). Unlike the

PND, which compared the lowest baseline score, the PEM accounts for the range of stress scores

in each baseline phase by using the median of the baseline scores.

The PEM score for participant #1 was 100% in both AB comparisons, as shown in Figure

18. A PEM score over 70% indicates an intervention is effective, and if the score is 90% or

higher, the intervention shows high effectiveness (Sen & Sen, 2019). The PEM method provides

weight to all scores in the baseline. PEM was created as an alternative to improve the PND

method (Parker et al., 2014; Sen & Sen, 2019). Differently, the PND uses the lowest baseline

score in the AB comparison and does not consider any of the other scores in the baseline data set.

Due to the high variability of scores in baseline phase A_1, the score range was 48, and the PND

was 25%. The PND in the second AB comparison was 100%, resulting in the overall effect of

the intervention for Participant #1 being mild and questionable using the PND method (Parker et

al., 2014; Ma, 2006). This differs from the intervention scores demonstrating high effectiveness

using the PEM method (Sen & Sen, 2019).

Figure 18. *Participant #1: Percentage Exceeding Median (PEM) for Stress*
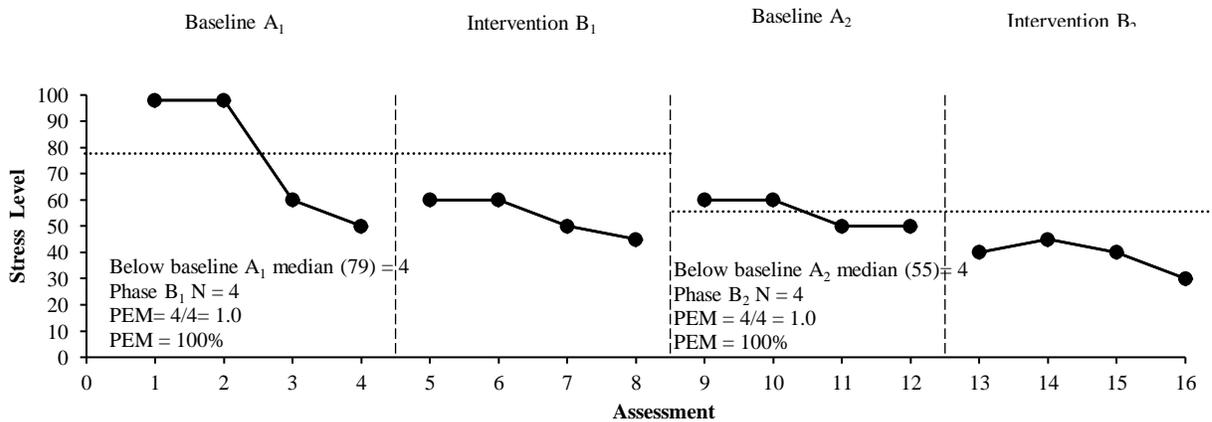
In Figure 19, the PEM value for participant #2 in the first AB comparison was 100%,

indicating the intervention was found highly effective in intervention phase B_1 (Sen & Sen,

2019). The value of 100% was the same when using the PND method in the first AB

comparison. The second AB comparison PEM value was 50%, indicating the intervention

effectiveness was questionable in the second intervention phase. Comparatively, the PND score

in intervention phase B_2 was 0% effective, with the overall PND at 50%, meaning mild to

questionable effectiveness (Ma, 2006; Parker et al., 2014). The intervention was found more

effective overall when the baseline median was used in each comparison using PEM instead of

the lowest baseline stress score using PND.

Figure 19. *Participant #2: Percent Exceeding Median (PEM) for Stress*
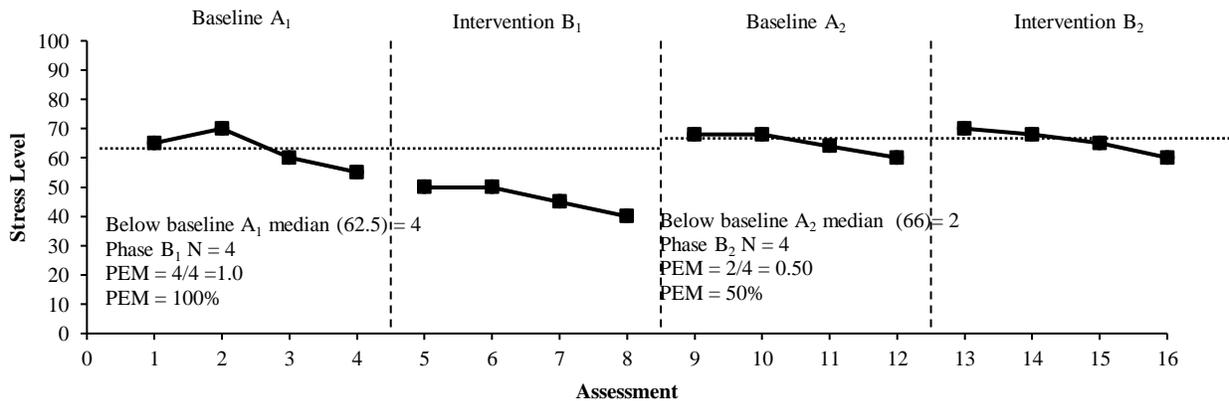
The stress scores for Participant #3 showed no variability within the first three phases and

a slight score fluctuation in the last phase, as shown in Figure 20. The first AB comparison had a

PEM of 0%, and the second AB comparison had a PEM of 100%. These were the same

percentages for participant #3's PND for stress. The results of both methods, PEM and PND,

found the B_1 intervention phase ineffective and the B_2 intervention phase highly effective (Parker

et al., 2014; Sen & Sen, 2019; Ma, 2006).

Figure 20. *Participant #3: Percentage Exceeding Median (PEM) for Stress*
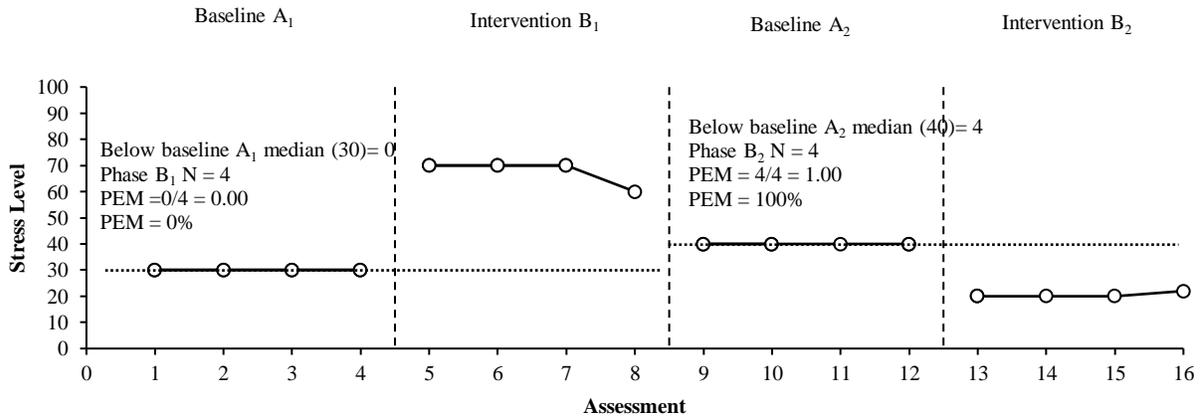
Hypothesis Three

The third alternate hypothesis states that the participant's attachment to their pet, as measured by the Lexington Attachment Pet Scale (LAPS) before their first session, will show an increase when measured after the participant's last session when the independent variable, their pet dog, attended two of their four teletherapy session with them. Scoring on the LAPS ranges from zero to 69, with 69 being the highest possible attachment score (Johnson et al., 1992; Ramírez et al., 2014). Each item on this self-report inventory can be answered using a four-point Likert scale of 0-3. A "0" response is "strongly disagree," a "1" is "somewhat disagree," a "2" is "somewhat agree," and a "3 is "strongly agree. Of the inventory items "a" - "w", items "h" and "u" are coded opposite of the others. A response of "strongly disagree" on "h" or "u" would be scored as a "3", "somewhat disagree" is "2", somewhat agree is "1" and agree is "0."

Two out of the three participants had no change in the range of their LAPS response scores from pre to post-test as shown in Table 21. The participant with a response score range of 2-3 on the pre-test, scored 3 on every LAPS question on the post-test. The range and mean values consider the reverse scoring that is required for questions "h" or "u" on the LAPS. On average all participants had responses to the LAPS indicating attachment to their pet. Although

the range of response scores did not change from pre- to post-study for participants #2 and #3,

their mean LAPS response scores demonstrated an increase. The range for participant #1 went

from 2-3 to only 3's.

Table 21. *Participant Lexington Attachment to Pets Scale (LAPS) Response Range and Mean*

	Pre-Study Range of Responses	Pre-Study Response Score Mean	Post-Study Range of Answers	Post-Study Response Score Mean
Participant #1	2-3	2.87	3	3
Participant #2	1-3	2.13	1-3	2.39
Participant #3	0-3	2.39	0-3	2.57

As shown in Figure 21, the initial score for each participant was below the maximum

score of 69; however, participant #1 scored 69 on their LAPS post-measure.

Figure 21. *Participant's Pre/Post Lexington Attachment to Pets Scale (LAPS) Scores*
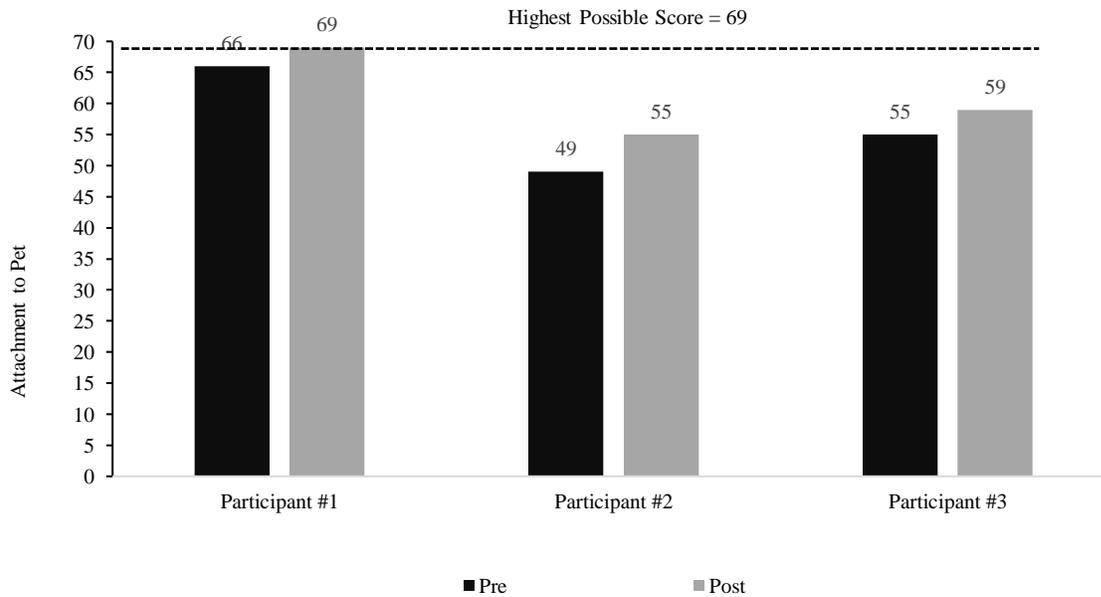
All three participants LAPS scores showed increased attachment to their pet dog after

participating in four teletherapy sessions, with two of the sessions including their pet dog. The

increase in participant LAPS scores at the end of the study varied from a nearly 5% to 12%

increase compared to their initial scores, as seen in Table 22.

Table 22. *Participants Pre/post Lexington Attachment to Pets Scale (LAPS) Percent of change*

	Pre-Test	Post-Test	% Change	
Participant #1	66	69	4.6%	increase
Participant #2	49	55	12%	increase
Participant #3	55	59	7%	increase

Chapter Five: Conclusions

Overview

This study explored a pet owner's participation in teletherapy sessions with and without their pet dog. The research hypothesized that including a participant's pet dog in their teletherapy session would influence the participant's degree of openness and stress during the session and impact their overall attachment to their pet dog. In this chapter, the study results will be compared with other research, literature, and theories related to the findings of this study. The study implications, limitations, and future research recommendations will also be covered.

Discussion

The purpose of this single-case experimental study is to understand the impact a pet dog has on its owner's teletherapy session. The first research question to be discussed is, "Does a pet owner's openness during their teletherapy session increase when their pet dog is in session with them?" Literature and other research have indicated that openness in therapy sessions can be difficult for clients, especially in early sessions (Cocklin et al., 2017; Hill, 2005; Kleiven et al., 2020).

A qualitative study by Kleiven et al. (2020) involved video-recording therapy sessions with participants and then interviewing them about their openness in the session after the session as they viewed the recorded session. At multiple points, themes were identified related to holding back in session based on the retrospective assessment by the study participants. The current study took a different approach to evaluation. Multiple openness ratings were taken throughout each session to track changes in real-time (Heppner et al., 2016; Hill, 2005). The participants in this study assessed their openness using an openness VAS. All the participants scored in the upper range of the openness VAS in every phase of this study. It is unclear if participant

openness in this study would yield different results if self-assessment occurred after the session instead of at the moment. When scores are gathered in the present time, there is little opportunity for the participant to think about their response. Assessment that occurs after a session is reflective, and the participant may not accurately conclude what had happened at the time.

Additionally, a client's openness has shown some connection to their sense of control in therapy and their view of a therapist's helpfulness (Cocklin et al., 2017; Swift et al., 2017). The therapist's approach and interaction with a client are instrumental in building a therapeutic alliance. Even though the participants in this study had no prior professional or personal contact with the research therapist, their scores indicated that they had a high level of openness from the beginning of the study. A client's impressions of a therapist impact the therapeutic process (Hill, 2005). Although impressions begin to form at the first contact between a client and therapist, prior assumptions and expectations could inform these impressions. Possibly, if participants were referred to this study by someone who knows the research therapist personally or professionally, they may feel more open than a participant who knew nothing or little about the researcher.

Another factor that may influence participant openness is pet ownership. Literature has shown that pets can impact a pet owner's social connections with others, especially with other pet owners (Chandler et al., 2015). If the study participants assumed the research therapist was a pet owner, possibly due to the premise of this study, they might have felt a connection to the researcher as a fellow pet owner. The assumption of pet ownership would be correct; the researcher is a dog owner. The implicit relationship between the participants and the researcher over pet ownership is a plausible link to the participants reported high levels of openness. Finding ways to connect with clients meaningfully contributes to supportiveness, builds hope,

and can improve outcomes (Hill, 2005; Cocklin et al., 2017; Swift et al., 2017). Pet ownership can be a connection point.

The second research question to be addressed is, "Can the accompaniment of their pet dog reduce a pet owner's stress during a teletherapy session?" Substantial research indicates an association between pet ownership and health benefits, including decreased stress (Wheeler & Faulkner, 2015; Chandler et al., 2015; Ma et al., 2020; Sane & Sawarkar, 2017). As society navigated through the COVID-19 pandemic, stress, worry, loneliness, and uncertainty were experienced, as would be expected during times of catastrophe and struggle (Compitus, 2021; McConnell et al., 201; Sammer, 2021; Vahratian et al., 2021; Shultz et al., 2015). Research has indicated that pets can provide comfort during emotional struggles and challenging times (Compitus, 2021). In this study, the participant's pet dog appeared to decrease their owner's stress level at times based on the outcomes of continuous self-measure of stress using a VAS.

In a commentary by Dell et al. (2021), an animal-assisted activity (AAA) involving therapy dogs visiting a university campus as a student de-stressor was moved to a virtual environment during the COVID-19 pandemic. The program's outcome data found that most participants were comforted and felt a connection to the therapy dogs in the virtual setting. The apparent success of the virtual environment led to recommendations for clinicians to incorporate animals in teletherapy sessions, mainly including the client's pet in online therapy. Including a client's pet in session is animal-informed therapy (AIT) (Moga, 2019). The connection between a pet and its owner relates to the human-animal bond. It can have a significant therapeutic value due to the relationship and attachment that can exist between a pet owner and their pet (Moga, 2019, Fine & Beck, 2019). The current study included the pet owner's dog in their teletherapy session to further explore AIT and HAB. Participant stress decreased in at least one intervention

phase compared to its preceding baseline phase for each participant. This suggests that the participants' pet dog may contribute to a decrease in participant stress when their pet is in session with them.

Unlike the first two research questions, the final research question did not focus on the participant's in-session experience. This research question queried the connection between a participant and their pet dog by asking, "Does a pet owner's attachment to their pet dog increase after their pet dog is in a teletherapy session with them?' Literature has repeatedly shown that a meaningful relationship can develop between people and animals (Chandler, 2019; Fine & Beck, 2019; Charles, 2014). A pet owner's attachment to their pet is sometimes more robust than their attachment to other people (Charles, 2014; Fine, 2019). To measure the study participants' attachment to their pet dog, the Lexington Attachment to Pets Scale (LAPS) was administered to each participant prior to their first teletherapy session and at the end of the study (Johnson et al., 1992). Four teletherapy sessions were conducted between each participant's completion of the first and second LAPS. The participant and their pet dog were in session together in the two intervention phases. The two baseline sessions excluded the pet dog.

The total LAPS score ranges from zero to 69, with 69 representing the highest attachment total score and zero representing none. Participant #1 had a pre-study LAPS score of 66, participant #2 scored 49, and participant #3 scored 55. The response scores on the LAPS range from zero to three, with three being the strongest agreement. The average pre-study response score to the LAPS questions was above two for all participants. All three participants endorsed attachment to their pets from the beginning of the study. The attachment to their pet may have contributed to their willingness to participate in a study including their pet.

Research by Horn et al. (2012) indicates that the relationship with a pet dog is not based on familiarity alone but also on the amount of time and interaction with the familiar person; this concept aligns with the post-study LAPS results. All three participants had an increase in their LAPS response score mean after having their pet dog participate in two of the four teletherapy sessions with them. Participant #1's mean response score rose from 2.87 to 3, participant #2's from 2.13 to 2.3, and participant #3's from 2.39 to 2.57. Spending time with their dog in session appears to have contributed to the participant's attachment to their pet. The post-study LAPS score for participant #1 increased by 4.6% over their pre-study score, participant #2 increased by 12%, and participant #3 increased by 7%. "Does a pet owner's attachment to their pet dog increase after their pet dog is in a teletherapy session with them?" This study indicates that the increase in the pet owner's attachment to their pet dog may be influenced by their pet dog accompanying them in teletherapy sessions based on an increase in participant LAPS score from pre-study to post-study.

Implications

Teletherapy is a practical way for therapists and clients to meet for mental health services (Aafjes-van Doorn, 2022). Delivering services virtually opens options that might not be available in face-to-face therapy sessions, such as a client attending therapy with their pet dog, like in this study. Research has indicated that teletherapy and face-to-face therapy have similar outcomes (Atzl et al., 2020; Khan et al., 2021; Yuen et al., 2015; Gros et al., 2013; Pierce et al., 2021). Examples of helpful teletherapy options are sessions during a work lunch break, couples' sessions when partners are in different locations, and meeting with a therapist living outside the client's area. These are ways teletherapy assists with logistical challenges.

The provision of teletherapy increased during the COVID-19 pandemic out of necessity (Pierce et al., 2021; Cantor et al., 2021; Lin, Heckman & Anderson, 2021). The necessity of virtual therapy brought the opportunity to develop ways to improve clinical experiences and outcomes as more clinicians were moving to a virtual platform. This research sought to better understand the therapy experience for a client by combining teletherapy, pet owners, and their pet dogs. By adding to the literature on pets and teletherapy, the benefits of the human-animal bond (HAB), animal-involved therapy (AIT), and owning a pet are better understood (Frehse, 2021; Connolly et al., 2022; Chandler, 2019; Fine & Beck, 2019; Charles, 2014; Levinson & Mallon, 1997; Friedmann, 2019; Wheeler & Faulkner, 2015; Chandler et al., 2015; Payne et al., 2015; Ma et al., 2020; Sane & Sawarkar, 2017; Maga, 2019). Each participant in this study showed increased attachment to their pet after having them in sessions with them. An indication was also that including a pet in session decreases client stress. These are some of the benefits of a pet joining its owner's teletherapy session that is linked to the outcomes of this study.

Including a client's pet as support during teletherapy sessions might not have been explored if anecdotal evidence of benefits had not been noticed by the researcher in their practice that shifted to teletherapy during the COVID-19 pandemic. Pets began joining the client's teletherapy sessions. The client would interact with their pet, and they seemed to enjoy talking about their pet, too. Some examples of pets in teletherapy sessions are a dog curled up on the couch by its owner, a cat's tail entering the screen in the middle of a session as they strolled by the camera, or hearing the snores of a sleeping animal as their owner pets them. Noticing what was happening in a private practice setting sparked an interest in something that could help the counseling field.

Having a curiosity about the world can bring enjoyment and intellectual stimulation. This study led to wonder about the effects of a pet dog on its owner's teletherapy. Through a Christian worldview, a deepening appreciation for the complexity of God's design can be achieved through a better understanding of His creations (Genesis 1; Psalm 148; Wilmer, 2019; Alcorn & Washington, 2006). Scripture states that animal creation was meant to provide companionship (Genesis 2: 18-19). The value of animals is shown again when God instructed Noah to "bring two of every sort into the ark to keep them alive" and safe from the flood (Genesis 6:17-20). Studies have shown that a bond between people and their pets can develop (Johnson & Bruneau, 2019; Fine & Beck, 2019). The literature indicates that having a pet can also provide physical and mental health benefits (Jones et al., 2018; Flynn et al., 2020). Curiosity led to research and literature on the connection between humans and animals; a Christian worldview informs how it is part of God's design.

Limitations

Internal and external validity had limitations, but measures were taken to decrease the threats. To reduce threats to internal validity, the replication of phases using a four-phase withdrawal design was applied (Lobo et al., 2017). Additionally, the study was replicated across three participants to reduce threats to external validity. Also, assisting with lessening the threat to external validity, each participant was in their home for teletherapy sessions. Although these were all homes, they were unique settings.

By increasing the number of SCED participants from one participant to more participants, the generalizability improves, and the study can be strengthened (Lobo et al., 2017). This SCED had three participants to reduce limitations and enhance the generalizability. An example of research on the individual level leading to a well-known intervention is early

individual-level token-economy research (Kazin, 2021). This emphasizes the usefulness of the research in this current study.

Self-assessment was utilized in this research throughout each phase to assess the participant's openness and stress separately. Although continuous self-assessment is appropriate for a SCED, the number of data points gathered impacts the demonstration of an effect (Kratochwill et al., 2010). The limitations on demonstrating effect in this study were due to each phase having four data points per phase, not the minimum five data points per phase recommended to meet the standard. To limit the impact on the demonstration of the effect, a withdrawal design was used with four phases and four data points per phase. This met the standard for demonstration of effect with reservations.

Although the standards for effect with reservations were met for this study, there are limitations to determining the effect size of a SCED intervention due to varying methods and opinions on doing so (Kratochwill et al., 2010; Scruggs et al.,1987; Parker et al., 2014; Sen & Sen, 2019). This study used two non-overlap methods, the percent of non-overlapping data (PND) and the percent exceeding the median (PEM), to compare effect outcomes and offset limitations. Effect size ranges were compared in several sources before applying them to this study.

When a pre-test is used in research, it can be a catalyst for change due to the participant's response to completing the pre-test and may not be associated with the intervention (Campbell & Stanley, 1963). This occurs when a participant reacts to a pre-test by increasing their behavior in what they believe to be the desired outcome based on the pre-test questions. This is known as a reactive effect and is a threat to the external validity of a study. There is a possibility that participants in this study partially or fully experienced a reactive effect to the Lexington

Attachment to Pets Scale (LAPS) pre-test resulting in increased post-test scores. All three

participants had an increase in their post-test scores compared to their pre-test scores.

Recommendations for Future Research

This study of a pet dog's impact on its owner's teletherapy session could be furthered in

many ways. Replicating this study with or without adjustments to the design could add to this

research. However, a single-case experimental design (SCED) is ideal for psychological research

to evaluate the effectiveness of an intervention on the individual level, which is why a SCED

was chosen for this study (Lobo et al., 2017; Kratochwill et al., 2010).

In addition to replicating this study, there are modification recommendations for future

research to be considered. Changes in measurement instruments, employing other types of pets

as the intervention, expanding participant demographic to include additional populations, and

lengthening session duration to allow for more data points are all potential modifications that

could further this study. Each of these recommendations has the potential to build on the findings

of this study and add knowledge to the fields of psychology, counseling, and pet ownership.

Furthering this research could lead to its generalizability to other settings, populations, and pet

types.

Behavioral observation measures are not always ideal when a study is conducted in a

counseling environment (Ray, 2015). Behavioral observations were not included in this study.

The foci of this study were stress, openness, and pet attachment, which are subjective to

individual thoughts and not overt behaviors observable in sessions. Although tracking participant

behaviors through observation was not chosen for this research, biometric measures might

benefit future research. Biometric readings, such as heart rate and body temperature, are

physiological measures that could be taken in teletherapy sessions with little interference to the

therapeutic process (Kyriakou et al., 2019). Smartwatches, pulse oximeters, EEG sensors, and other devices make biometrics easily accessible (Liu et al., 2013; Matsumoto et al., 2023; Kyriakou et al., 2019). Biometric data offers a researcher information based on the participant's bodily reactions. Biometric data and data collected through the participant's self-assessment could strengthen future research while considering the clinical nature of the work done in a private practice setting (Vannest & Ninci, 2015).

The intervention in this study was the participant's pet dog. A future study might replace the pet dog with a different type of pet as the intervention. Studies that start on the individual level can potentially become generalizable (Kazin, 2021). A better understanding of the impact of a pet on its owner's teletherapy session could be explored by pet type; the connection between a pet owner and their pet may differ depending on the animal type. Numerous studies could be an offshoot of this study.

The final recommendation could be easily achieved by lengthening each phase's session length or shortening the self-assessment intervals. The addition of more assessment points would not only provide additional study data but would also meet the standard for demonstrating an effect (Kratochwill et al., 2010). In a SCED with a four-phase withdrawal design, a minimum of five data points per phase is recommended to meet the standard for demonstrating an effect.

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Appendix A

LIBERTY UNIVERSITY.
INSTITUTIONAL REVIEW BOARD

October 12, 2022

Carlette Layne
Sonya Cheyne

Re: IRB Exemption - IRB-FY22-23-165 Pet Dog in Teletherapy

Dear Carlette Layne, Sonya Cheyne,

The Liberty University Institutional Review Board (IRB) has reviewed your application in accordance with the Office for Human Research Protections (OHRP) and Food and Drug Administration (FDA) regulations and finds your study to be exempt from further IRB review. This means you may begin your research with the data safeguarding methods mentioned in your approved application, and no further IRB oversight is required.

Your study falls under the following exemption category, which identifies specific situations in which human participants research is exempt from the policy set forth in 45 CFR 46:104(d):

Category 2.(iii). Research that only includes interactions involving educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior (including visual or auditory recording) if at least one of the following criteria is met:
The information obtained is recorded by the investigator in such a manner that the identity of the human subjects can readily be ascertained, directly or through identifiers linked to the subjects, and an IRB conducts a limited IRB review to make the determination required by §46.111(a)(7).

Your stamped consent form(s) and final versions of your study documents can be found under the Attachments tab within the Submission Details section of your study on Cayuse IRB. Your stamped consent form(s) should be copied and used to gain the consent of your research participants. If you plan to provide your consent information electronically, the contents of the attached consent document(s) should be made available without alteration.

Please note that this exemption only applies to your current research application, and any modifications to your protocol must be reported to the Liberty University IRB for verification of continued exemption status. You may report these changes by completing a modification submission through your Cayuse IRB account.

If you have any questions about this exemption or need assistance in determining whether possible modifications to your protocol would change your exemption status, please email us at i**@l******.edu

Sincerely,
G. M****** B**** , **MA, CIP**
Administrative Chair of Institutional Research
Research Ethics Office

LIBERTY UNIVERSITY.
INSTITUTIONAL REVIEW BOARD

October 21, 2022

Carlette Layne
Sonya Cheyne

Re: Modification - IRB-FY22-23-165 Pet Dog in Teletherapy

Dear Carlette Layne, Sonya Cheyne,

The Liberty University Institutional Review Board (IRB) has rendered the decision below for IRB-FY22-23-165 Pet Dog in Teletherapy .

Decision: Exempt - Limited IRB

Your request to revise your recruitment criteria to exclude participants who have or have had a personal or professional relationship with you has been approved. Thank you for submitting your revised study documents for our review and documentation. Your revised, stamped consent form and final versions of your study documents can be found under the Attachments tab within the Submission Details section of your study in Cayuse IRB. Your stamped consent form should be copied and used to gain the consent of your research participants. If you plan to provide your consent information electronically, the contents of the attached consent document should be made available without alteration.

Thank you for complying with the IRB's requirements for making changes to your approved study. Please do not hesitate to contact us with any questions.

We wish you well as you continue with your research.

Sincerely,

G. M****** B**** **MA, CIP**
Administrative Chair of Institutional Research
Research Ethics Office

Appendix B

Consent

Title of the Project: Pet Dog in Teletherapy
Principal Investigator: Carlette Layne, LMFT, Doctoral Candidate, Liberty University

Invitation to be Part of a Research Study

You are invited to participate in a research study. To participate, you must be a minimum age of 18 years old with mild to moderate anxiety or depressive symptoms, reside in California, and physically be in California at the time of the study. You are required to own a dog that must also be available to join you in two of the teletherapy sessions. You must have sufficient English language skills to participate without an interpreter. You must have access to the technology needed to participate in teletherapy, including internet access and a device with video and audio capability to connect to the internet. You must not present with current suicidality, substance dependence, psychotic symptoms, severe self-injury, or neurocognitive impairment. You must not currently or historically have a personal or professional relationship with the researcher for this study. Taking part in this research project is voluntary, and the participant may choose to discontinue involvement at any time.

Please take time to read this entire form and ask questions before deciding whether to take part in this research.

What is the study about and why is it being done?

The purpose of the study is to understand the effect of a pet dog on its owner's teletherapy session. Teletherapy continues to become an acceptable mode of therapy, this study will examine the teletherapy experience for the participant.

What will happen if you take part in this study?

If you agree to be in this study, I will ask you to do the following things:
1. Verbally complete the PHQ-9, GAD-7, and screening questions during a virtual screening meeting. If you meet the criteria to participate in this study, you will be asked to verbally complete the LAPS, an assessment about your pet dog, and schedule 4 teletherapy sessions. This initial meeting will take approximately 30-40 minutes.
2. Complete 4 individual teletherapy sessions over 4 weeks total, with one session per week. Each will take approximately 50 minutes to complete. Your dog will need to be present for the second and fourth sessions. Throughout each session, you will be asked to verbally self-assess your stress levels and openness level at 10-minute intervals, for a total of 4 times each session, using the VAS. At the end of the fourth session, you will be asked to verbally complete the LAPS, an assessment about your pet dog.

How could you or others benefit from this study?

The direct benefits participants should expect to receive from taking part in this study are typical benefits of short-term talk therapy. Participants may gain feelings of being supported and improved well-being which can be typical responses to talk therapy.
Benefits to society include increased knowledge about the therapy experience with and without a pet dog.

What risks might you experience from being in this study?

The risks involved in this study are minimal, which means they are equal to the risks you would encounter in everyday life.

The researcher is a mandated reporter. There is a risk of information being disclosed by participant while in the study that triggers the mandatory reporting requirements for child abuse, child neglect, elder abuse, or intent to harm self or others.

How will personal information be protected?

The records of this study will be kept private. Published reports will not include any information that will make it possible to identify a subject. Research records will be stored securely, and only the researcher will have access to the records. Data collected from you may be shared for use in future research studies or with other researchers. If data collected from you is shared, any information that could identify you, if applicable, will be removed before the data is shared.

- Participant responses will be kept confidential through the use of codes. The virtual screening meeting and teletherapy sessions will be conducted in a location where others will not easily overhear the conversation.
- Data will be stored on a password-locked computer that will be stored in a locked filing cabinet and may be used in future presentations. Any hard copy data will be stored in a locked filing cabinet only accessible by the researcher and may be used for future presentations. After three years, all electronic records will be deleted and hard copy data will be shredded.

Is study participation voluntary?

Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with Liberty University. If you decide to participate, you are free to not answer any question or withdraw at any time without affecting those relationships.

What should you do if you decide to withdraw from the study?

If you choose to withdraw from the study, please contact the researcher at the email address included in the next paragraph. Should you choose to withdraw, data collected from you will be destroyed immediately and will not be included in this study.

Whom do you contact if you have questions or concerns about the study?

The researcher conducting this study is Carlette Layne. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact her at c*******@l******.edu. You may also contact the researcher's faculty sponsor, Dr. Sonya Heckler Cheyne, at s********@l******.edu.

Whom do you contact if you have questions about your rights as a research participant?

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, **you are encouraged** to contact the Institutional Review Board, 1*** U********* B***., G**** H*** Ste.****, , Lynchburg, VA 24515 or email at i**@l******.edu.

Disclaimer: The Institutional Review Board (IRB) is tasked with ensuring that human subjects research will be conducted in an ethical manner as defined and required by federal regulations. The topics covered and viewpoints expressed or alluded to by student and faculty researchers are those of the researchers and do not necessarily reflect the official policies or positions of Liberty University.

Your Consent

By signing this document, you are agreeing to be in this study. Make sure you understand what the study is about before you sign. You will be given a copy of this document for your records. The researcher will keep a copy with the study records. If you have any questions about the study after you sign this document, you can contact the study team using the information provided above.

I have read and understood the above information. I have asked questions and have received answers. I consent to participate in the study.

_____

Printed Subject Name

_____

Signature & Date

Appendix C

[External] RE: Permission to use LAPS

J******, T**   t****@u**.edu
Fri 7/8/2022 10:54 AM
To: Layne, Carlette c*******@l******.edu

[EXTERNAL EMAIL: Do not click any links or open attachments unless you know the sender and trust the content.]

Hi Carlette, yes you certainly have permission to use the LAPS in your research. Wishing you the best with your work. Tim J

From: Layne, Carlette c*******@l******.edu
Sent: Friday, July 8, 2022 12:50 PM
To: J******, T***<t****@u**.edu>
Subject: Permission to use LAPS

Dr. T****** P. J******,

I am a doctoral student at Liberty University completing a dissertation in the School of Behavioral Sciences. I am writing to ask written permission to use the Lexington Attachment to Pets Scales (LAPS) in my research study. My research is a single case experimental design on the impact of a pet dog on its owner's teletherapy session. My research is being supervised by, Dr. Sonya Heckler Cheyne, Associate Professor.

If permission is granted, I plan on administering the LAPS prior to the first teletherapy session and then again after the fourth session, which is the final session. The scale will be electronically provided to the participants. There will be 2-3 participants in my study. In addition to using the instrument, I also ask your permission to reproduce it in my dissertation appendix.

I would like to use and reproduce the Lexington Attachment to Pets Scales (LAPS) under the following conditions:

·   I will only use for my research study and will not sell or use it for any other purposes

·   I will include a statement of attribution and copyright on all copies of the instrument. If you have a specific statement of attribution that you would like for me to include, please provide it in your response.

If you do not control the copyright for these materials, I would appreciate any information you can provide concerning the proper person or organization I should contact.

If these are acceptable terms and conditions, please indicate so by replying to me through e-mail at c*******@l******.edu.

Appendix D

Initial Screening

Script: Please answer "Yes" or "No" to each of the following questions about you.

1. Are you at least 18 years of age?

   Yes or No

2. Are you a California resident?

   Yes or No

3. Will you physically be in California at the time of the study?

   Yes or No

4. Are you a dog owner?

   Yes or No

5. If you are a dog owner, will your pet dog be able to join you in two teletherapy sessions?

   Yes or No

6. Do you have access to technology and equipment that would allow you to participate in

   teletherapy sessions?

   Yes or No

7. Are you able to sufficiently communicate in the English language without an interpreter?

   Yes or No

8. Are you experiencing any psychotic symptoms?

   Yes or No

9. Do you have any neurocognitive impairments?

   Yes or No

10. Are you dependent on any substances, such as drugs or alcohol?

Yes or No

Appendix E

Participants Demographics

Script: Please verbally provide the following information about *yourself.*

1. Age: _____

2. Gender: _____

3. Race: _____

4. Ethnicity: _____

5. Relationship status: _____

6. Education Level: _____

7. Occupation: _____

Script: Please verbally provide the following information about your *pet dog*.

1. Age: _____

2. Length of time you have had your dog: _____