

EFFECTS OF A TRAINED THERAPY DOG IN CHILD-CENTERED PLAY THERAPY
ON CHILDREN'S BIOBEHAVIORAL MEASURES OF ANXIETY

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Dissertation Prepared for the Degree of
DOCTOR OF PHILOSOPHY

UNIVERSITY OF NORTH TEXAS

May 2005

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Athy, Annette L. *Effects of a Trained Therapy Dog in Child-Centered Play Therapy on Children's Biobehavioral Measures of Anxiety*. Doctor of Philosophy (Counseling), May 2005, 151 pages, 56 tables, 4 figures, 120 references.

This study was concerned with reducing children's anticipatory anxiety when entering mental health services for the first time. The purpose of this study was to determine whether combining two effective modalities, play therapy and animal-assisted therapy, would be effective in decreasing children's biobehavioral measurements of anxiety. Specifically, this study examined the effects of the presence of a trained therapy dog during one individual 30-minute play therapy session.

The experimental group consisted of 26 children who received one individual 30-minute play therapy session with the presence of a trained therapy dog. The comparison group consisted of 25 children who received one individual 30-minute play therapy session without the presence of a trained therapy dog. The SenseWear® PRO 2 armband monitor measured children's biobehavioral measurements such as galvanic skin response, temperature, and activity level (BodyMedia, Inc., Pittsburgh, PA, www.bodymedia.com). The Tanita 6102 Cardio® digital heart rate monitor measured children's pre-treatment and post-treatment heart rates (Tanita Corporation of America, Inc., Arlington Heights, IL, www.tanita.com).

Five hypotheses were tested using repeated measures ANOVA with mixed factors and eta squared. All five hypotheses in this study were retained based on statistical significance at the .05 level. The combination of child-centered play therapy (CCPT) and animal-assisted therapy was shown to have little practical significance in decreasing children's first 5-minute biobehavioral measurements, middle 5-minute

biobehavioral measurements, last 5-minute biobehavioral measurements as measured by the SenseWear Pro 2 armband monitor. The combination of CCPT and animal-assisted therapy was shown to have little practical significance in decreasing children's pre-treatment and post-treatment heart rate. The results of the two factor repeated measures analysis of variance with mixed factors were not statistically significant. Although, research has shown that play therapy is an effective modality in reducing children's anxiety over time, children's anticipatory anxiety was increased in the first 30-minutes of play therapy with or without the presence of a trained therapy dog. Anticipatory anxiety may have been due to the children experiencing a novel and unfamiliar situation, entering the play therapy room with a stranger, the non-structured environment of the play therapy room, or a first interaction with the armband monitor.

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ACKNOWLEDGEMENTS

I would like to thank Dr. Dee Ray for her knowledge and attention to details, Dr. Sue Bratton for her insights, and Dr. Cynthia Chandler for the privilege of working with her “baby.” Special thanks go to Jason Sedbrook and Savannah Athy-Sedbrook for their unconditional support and for enduring my commitment to my doctoral career. I also want to thank my family for their love and understanding. Lastly, I would like to thank the elementary school and mental health clinic for welcoming my presence.

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CHAPTER I

INTRODUCTION

With the rise in parental divorce, current terrorist threats, and high turnover in employment causing frequent relocation of families, levels of anxiety have increased in children as well as adults. Over the last forty years, a meta-analysis of research showed that levels of anxiety have risen, but it is unknown if societal changes or current events, such as terrorist attacks or natural disasters, have influenced these trends (Twenge, 2000). During these changes, children and adults tend to experience some anxiety encountering new surroundings (Garber, Garber, & Spizman, 1993). It is typical for many adults and children to experience anxiety when introduced to novel situations or experiences. Often people are frightened of situations that are new and unfamiliar. Anxiety can produce physical symptoms such as difficulty breathing, sweaty palms, accelerated heart rate, trouble sleeping, or shakiness (Thompson, 1998). Throughout life, it is common for most people to experience some level of anxiety. However, some people may experience brief or constant states of anxiety. In children, normal anxiety is expressed differently depending on age and gender (Barrios & O'Dell, 1989). Particularly, literature suggests that anxiety symptoms are more prevalent in younger children than older children, and girls are more likely than boys to have symptoms (Anderson, Williams, McGee, & Silva, 1987; Francis, Last, & Strauss, 1987). Over time, the nature of children's anxiety may change. The effects of anxiety also differ among individuals. For example, some people may be paralyzed with anxiety while others seem to function normally.

More specifically, anticipatory anxiety can exist within children or adults. Anticipatory anxiety is defined as worrying or anticipating danger of the unknown and is present in many adults and children (Gray, Kemp, Silberstein, & Nathan, 2003). Anticipatory anxiety can lead to feelings of uneasiness, excessive worrying, apprehension, and tension. Knowing that this anticipatory anxiety can emerge in children when introduced to new people or situations, seeking mental health services to cope with life changes may not seem like an option to parents. Initially, seeking mental health services introduces children to a variety of unfamiliar people, surroundings, and structure similarly to many other activities and experiences in children's lives. However, mental health services are intended to provide an emotional outlet for children and adults, not to increase unpleasant feelings.

Therefore, children's anticipatory anxiety may cause their parents to be apprehensive when seeking mental health services or even completely discourage them. Furthermore, parents may not seek mental health services for any of the following reasons: cost of therapy, involvement of time, worries about where the roots of the problems lie, and believing that their child is only going through a phase (Oaklander, 1988). Parents and their children's expectations of what mental health services are may be inaccurate and may influence the parents' willingness to seek help (Deane & Chamberlain, 1994). Many parents may be dissuaded from seeking mental health services for their children especially if their children are currently exhibiting symptoms of anxiety in other new or unfamiliar settings. It is possible that some parents believe it is easier to cope without services than to start services and heighten anxiety levels within their children. However, even if parents do seek services for their children, the parents

may terminate mental health services prematurely (Venable & Thompson, 1998). Moreover, it is possible that children's anxiety may increase which can be seen as resistance by the mental health provider and inhibit the therapeutic process (Rogers, 1961). Therefore, it is important to attempt to discover what can be done in order to minimize children's anxiety when entering therapeutic services.

Furthermore, when children are introduced to a new environment and/or new people, many children may experience heightened arousal. According to Perry and Poland (1998), children do not automatically determine their environment as safe. Their brain judges unfamiliar environmental cues as threatening until these cues are deemed safe. Therefore, it is important to note that play does not occur in novel situations (Landreth, 2002). Knowing this, mental health providers may expect children to enter counseling with a higher level of anxiety due to the exposure to new people and an environment that is unfamiliar to these children.

As mental health providers, there is an obligation to be sensitive to the child's world and experience of new situations. Mental health professionals have developed alternative modalities to successfully help children cope with life changes rather than traditional talk therapy. More specifically, play therapy and animal-assisted therapy are two such alternative modalities. Both modalities seek to minimize children's anxiety. First, play is a child's natural language. Therefore, play therapy capitalizes on this knowledge in order to allow children to express themselves through their primary mode of communication (Landreth, 2002). Secondly, animal-assisted therapy utilizes the ability of an animal to become a nonthreatening component of the child's therapy

session that can help facilitate a bond between the child and the therapist (Beck, Hunter, & Seraydarian, 1986; Martin & Farnum, 2002).

“Children spend much of their youthful energy engaged in play. Indeed, play, in its various forms, is a serious business--not only for the active participants but also for students of the phenomenon” (Cheah, Nelson, & Rubin, 2001, p. 40). Until the late 1800s, child’s play was not considered an important activity. Since then, numerous books and articles have been written about the study of children, the meaning of their play, and later combined into therapeutic treatment. Essentially, “the pervasive presence of play in the activities of the child, the puzzle concerning the cause, content, and purpose of play, and the practical application of play to foster the development of the child, have been discussed for centuries” (Neumann, 1971, p. 5). Play has been defined in a variety of ways encompassing its ability to provide a child with a mechanism for coping, learning, understanding, intelligence, and mastery. Infants cope with their anxiety through play which also forms a link between the child’s real experiences and perceived experiences (McMahon, 1992). Play becomes part of a child’s critical development process not only during infancy, but also continues as the child grows. Knowing that play is the natural medium of communication and self-expression, play therapy allows a child to express his or her experiences rather than to talk out his or her experiences as in adult therapy (Axline, 1947; Landreth, 2002).

The first modality addressed in this study is child-centered play therapy (CCPT). CCPT is founded on the notion of promoting an empathetic, nonjudgmental, accepting, therapeutic environment for children. This environment helps the child move toward full human potential also referred to as a self actualizing tendency. Children are allowed to

fully express their experiences through the use of toys. The toys become the child's words, and play is the child's language. Child-centered play therapists provide an environment for children that facilitate self-directedness and striving toward personal growth (Axline, 1969; Landreth, 2002). Professionals in the field of CCPT have produced results showing the effectiveness with children experiencing anxiety and stress (Clatworthy, 1981; Rae, Worchel, Upchurch, Sanner, & Daniel, 1989; Schmidtchen & Hobrucker, 1978). Essentially, the following components of CCPT help to maximize effectiveness with children's anxiety. The play therapist provides unconditional acceptance to the child; however, the child must perceive this acceptance from the therapist (Axline, 1969). Play is the child's natural medium of communication (Axline, 1969; Landreth, 2002). In addition, the development of the therapeutic relationship between the child and the play therapist is central to CCPT (Axline, 1969; Landreth, 2002). In CCPT, the child becomes internally motivated and leads the play while the play therapist follows (Axline, 1969; Landreth, 2002). The playroom and placement of the toys is predictable and consistent (Axline, 1969; Landreth, 2002). Lastly, the play therapist promotes and maintains a permissive environment (Axline, 1969; Landreth, 2002). With these components and the development of a therapeutic relationship, CCPT may not initially lower children's anxiety, but over time these conditions provide an optimal opportunity to decrease children's anxiety.

The second modality presented in this study is animal-assisted therapy. Animal-assisted therapy allows children to develop relationships with a nonthreatening transitional object, the trained therapy animal (Levinson, 1969). Many studies have shown that the human-animal bond is beneficial not only in lowering anxiety, but also in

enhancing relationships (Beck et al., 1986; Fine, 2000; Levinson, 1962; Mallon, 1992). In a therapeutic session, the trained therapy animal becomes a catalyst for movement in therapy as well as confidant to the child (Chandler, 2001). Specifically, animal-assisted therapy has been researched to show its effectiveness in decreasing anxiety for the following reasons. The presence of a trained therapy animal makes the environment feel less threatening and provide an element of safety (Beck et al., 1986; Gonski, 1985; Katcher & Wilkins, 1993). The trained therapy animal may serve as a transitional object in the animal-assisted therapy session (Levinson, 1969; Soares, 1985; Winnicott, 1971). Moreover, the trained therapy animal gives unconditional love and acceptance to the client during the session (Hoelscher & Garfat, 1993; Levinson, 1969; MacDonald, 1979; Mallon, 1992; Mallon, Ross, & Ross, 2000). As shown in studies, a trained therapy animal normalizes the environment and provides a calming presence (Baun, Bargstrom, & Langston, 1984; Hart, 2000; Mallon, Ross, & Ross, 2000; Wilson, 1991). Finally, the trained therapy animal may enhance the stability and consistency of the environment (Levinson, 1969; Katcher, 1983).

Even with the development of play therapy and animal-assisted therapy, children may still experience high levels of anxiety during the beginning sessions of treatment. As individual treatment modalities, play therapy has been shown to be therapeutically effective with children (Ray, Bratton, Rhine, & Jones, 2001) and research has shown animal-assisted therapy as an effective treatment for children (Friedmann, Katcher, Thomas, Lynch, & Messent, 1983; Hansen, Messinger, Baun, & Megel, 1999). However, children's anxiety may dissipate quicker with the presence of a trained therapy dog and a play therapy room equipped with selected toys. Research shows the

benefits of play therapy and animal-assisted therapy as independent modalities. However, the purpose of this study is to investigate the benefit of combining both modalities.

Statement of the Problem

This investigation will address effects of the presence of a trained therapy dog on children's anxiety biobehavioral measures during an initial CCPT session, compared to an initial child-centered session without a trained therapy dog. This study will attempt to evaluate if a trained therapy dog affects: (1) children's galvanic skin response, (2) children's temperature, and (3) children's activity level. This study will be of value in that it will examine whether or not the combination of two known effective modalities of working with children, play therapy and animal-assisted therapy, has a different combined effect than when each modality is utilized independently.

Review of Related Literature

The following is an extensive review of literature and research related to four major areas: (1) an exploration of children's anxiety, (2) a rationale for using CCPT, (3) a basis for using animal-assisted therapy, (4) a rationale to incorporate play therapy and animal-assisted therapy, and (5) an overview of biobehavioral measurements.

An Exploration of Children's Anxiety

When in a new situation or experiencing something for the first time, it is natural for people to experience anxiety. It is developmentally appropriate for children to experience a variety of fears at different ages. Moreover, children may express a significant number of anxiety symptoms without having an anxiety disorder (Bell-Dolan, Last, & Strauss, 1990). Infants, ages 4-12 months, may experience normal stranger

anxiety. Additionally, infants and toddlers may develop normal separation anxiety. Toddlers and preschoolers, ages 2-6 years, become anxious about monsters or fantasy creatures. Children, ages 7-11 years, worry about real situations that may occur (Castellanos & Hunter, 1999; Garber, Garber, & Spizman, 1993). Anxiety in some situations is not only appropriate, but necessary to form safe boundaries.

Deffenbacher (1992) defined anxiety as an aversive emotional experience that prompts individuals to distance from, eradicate, or control the source of their anxiety. Anxiety produces subjective feelings of tension and fear, decreased cognitive and behavioral performance, increased perceptions of danger and risk, increased physiological arousal, and/or avoidance and escape. Deffenbacher suggested that people's anxiety is based on conclusions from information divided into three domains:

1. Affective-physiological domain - a person experiences subjective feelings of anxiety, heightened autonomic sense of arousal, and sympathetic and parasympathetic arousal.
2. Cognitive-perceptual domain - a person experiences changes in attentional and informational processes, cognitive performance, and sensory-perceptual distortions.
3. Somatic-behavioral domain - a person experiences differences in voluntary musculature and overt behavior (1992).

Lapouse and Monk (1964) questioned mothers of children ages 6 to 12 to determine if their children were experiencing fears and worries. This epidemiological study found that mothers of 43% of the children reported that their children experienced fears and worries. Specifically, these mothers stated that their child was experiencing

“many” (seven or more) fears and worries. Mothers of 41% of the children reported that their children had concerns with separation. However, with their own observation, Lapouse and Monk suggested that mothers underestimate the fears and worries of their children.

Bell-Dolan, Last, and Strauss (1990) examined anxiety disorder symptoms in 62 children who had never been referred for services and considered never-psychiatrically-ill. The children ranged in age from 5 to 18. As part of a 4-hour assessment, each participant filled out self-report forms in addition to the forms his or her parent completed. Then, separately each parent and child participated in a structured interview. Bell-Dolan, Last, and Strauss concluded that it seems normal for children to experience anxiety symptoms without developing an anxiety disorder. In addition, the study suggested that unless anxiety symptoms are severe, anxiety symptoms are part of normal development. The authors also indicated that over time children’s anxiety seems to decrease.

Often, anxiety is experienced in a situation where there is no real danger, but the threat feels real (Perry, 1993). Children are highly sensitive to environmental cues. Without factual and simple information, children may enhance an experience in their own mind and create more anxiety. When this anticipatory anxiety occurs, many symptoms can occur. For example, children may exhibit impulsivity, withdrawal, somatic complaints, temporary twitches, accelerated heart rate, and increase in muscle tension (Castellanos & Hunter, 1999; Garber, Garber, & Spizman, 1993; Perry, 1993). These physiological and psychological changes in children are developmentally appropriate.

However, if these symptoms persist, the child may need mental health services for anxiety.

DeRoche (1990) studied 143 fifth grade children's attitudes and knowledge about mental health services. Half of the students watched a 19-minute videotape orientation and then participated in one guidance session. All the students completed inventories about their mental health knowledge, mental health counseling attitude, and state-anxiety levels. The results indicated that children in the treatment group were more knowledgeable and had more realistic expectations about mental health services after watching the videotape and participating in the guidance session. The results also suggested that children expressed more positive attitudes toward mental health services. Therefore, anticipatory anxiety may be decreased if children were exposed to a videotape or other media that provided an explanation of mental health services.

The following research has been done to suggest the importance of play with children and decreasing their anxiety. However, the studies used children's play as a treatment rather than play therapy. Golden (1983) reviewed literature that supported the use of play with children who were hospitalized. He indicated that the playroom provided a safe environment for children to explore their anxieties about upcoming procedures and fears about being hospitalized. Barnett and Storm (1981) suggested that in preschool children free play served as medium to alleviate conflict distress. Barnett (1984) attempted to replicate the previous study with preschool children. The study compared the impact of play or story time on children's anxiety levels. The results supported the previous study and indicated that play reduced children's anxiety levels.

Meer (1985) suggested that play with puppets was beneficial in minimizing children's anxieties and fears before having injections in an outpatient setting.

Milos and Reiss (1982) researched the effects of play during three sessions with 64 children ages 2 to 6. The authors compared three treatment groups: free play, directed play, and modeling. In comparison with the non-intervention control group, each group showed significantly reduced anxiety. Birenbaum (1980) implicated that play helped to alleviate anxieties in hospitalized children, which in turn minimized the parents' anxiety. She suggested that the confidence gained through play was attributed to reducing children's anxiety. Billington (1972) indicated that play was beneficial for sick children as well as healthy children. He stated that children can eliminate anxiety through playing out procedures and role-playing as the doctor or nurse.

A Rationale for Using Child-Centered Play Therapy

In the early 1900s, Freud was the first to introduce the idea of play into therapy. He published a case about a child, "Little Hans," and attributed an emotional cause as the reason why the child was having difficulties (Landreth, 2002). Later, Anna Freud utilized play as a means to assess the child's readiness for treatment; however, she was not using play as a means of communication but rather as a means of connecting with the child (Landreth, 2002). Klein began to use play as a substitute for language. She believed that play was internally motivated just as free association was for adults (Landreth, 2002).

The original philosophy and rationale for CCPT came from Carl Rogers. He believed that the central components of client-centered therapy applied to children as well. One of his students, Axline (1969), trained in child development, adapted and

created nondirective play therapy from the tenets of Rogers' client-centered therapy (Guerney, 2001). However, nondirective play therapy is currently referred to as CCPT (Landreth, 2002). She believed, as Rogers did, that the therapeutic relationship added an element of safety to the play session (James, 1977). To create a safe, therapeutic environment, Axline (1969) outlined eight optimal conditions for play therapy:

1. The therapist must develop a warm and friendly relationship with the child in order to establish rapport as soon as possible.
2. The therapist unconditionally accepts the child as he or she is.
3. The therapist establishes a feeling of permissiveness, so the child feels free to completely express his or her feelings.
4. The therapist recognizes the feelings the child is expressing and reflects them back to the child, so he or she may gain insight into his or her behavior.
5. The therapist maintains a deep respect for the child to solve his or her own problems. It is the child's responsibility to make choices and institute change.
6. The therapist does not attempt to direct the child's actions or conversation. The child is always in the lead; the therapist follows.
7. The therapist does not attempt to rush the therapeutic process, because it is a gradual process.
8. The therapist establishes only the limitations that are necessary in order to keep the therapy in the world of reality and make the child aware of his or her responsibility in the relationship (pp. 73-74).

With these necessary principles are present in the playroom and perceived by the child, the play therapist is able to create a safe and therapeutic play environment to facilitate personal growth (Axline, 1969; Guernsey, 1983; Landreth, 2002; Moustakas, 1975). Axline believed that when children experience unconditional acceptance, then their unconditional self-regard will increase (James, 1977). In this environment, child-centered play therapists believe that through play, children's power to change and grow is inner-directed (Axline, 1969). However, self-directed play does not occur in novel or frightening situations (Landreth, 2002; Perry, 1998). Therefore, if a child is paralyzed with fear or anxiety, this limits his or her ability to focus energy in a useful manner. The play therapist provides an atmosphere where the child can grow and heal emotionally rather than avoiding negative aspects of his or her environment.

CCPT allows children the freedom to explore the playroom and utilize whatever toys they need to express themselves. The child directs or leads the play session. This control seems to grant the child permission to be assertive in his or her play. CCPT is also based on the assumption that the child will know what type of play he or she needs in order to obtain a sense of mastery in his or her life (Axline, 1969; Landreth, 2002).

Axline (1969) emphasized the importance of the therapist in facilitating a child's expression of all feelings. However, she noted that it is vital for the therapist to maintain complete acceptance of the child's inner feelings and make appropriate reflections in order to enhance the child's awareness and understanding of his or her own behavior. Axline (1950) also stressed that "a play experience is therapeutic because it provides a secure relationship between the child and the adult, so that the child has the freedom and room to state himself in his own terms, exactly as he is at that moment in his own

way and in his own time” (p. 68). Therefore, the child’s experience is of the utmost importance.

Landreth (2002) defined play therapy as a safe relationship that allows a child to express emotions as well as explore self through the use of play. Perry (1993) also indicated that a consistent and predictable therapeutic relationship must be established for children to fully explore their experiences. Until approximately the age of 10, children do not possess the full capacity for abstract reasoning or verbal processing. Therefore, it is appropriate for children to use play as a medium for self-expression (Piaget, 1962). Play is the natural way for children to express themselves (Axline, 1969; Landreth, 2002; Meer, 1985). Through play, children can gain mastery or understanding of traumatic events experienced in their lives. Play permits children to cope with experiences in their lives and express anxieties, fantasies, feelings, and conflicts in a safe and manageable way (Birenbaum, 1980; Meer, 1985; Nickerson, 1974).

The play therapist trusts the play process of each child. The objective of play therapy is to “release the child’s inner directional, constructive, forward-moving, creative, self-healing power” (Landreth & Sweeney, 1997, p. 17). In play therapy, children overcome their feelings of vulnerability and explore more realistic expectations of themselves. Landreth (2002) noted child-centered play therapists do not create specific goals for each child to accomplish in sessions. However, the play therapist uses broad objectives to help facilitate appropriate responses. The overall objectives of CCPT facilitate and guide each session in order to help the child with the following: (1) develop a more positive self-concept, (2) assume greater self-responsibility, (3) become more self-directing, (4) become more self-accepting, (5) become more self-reliant, (6)

engage in self-determined decision making, (7) experience a feeling of control, (8) become sensitive to the process of coping, (9) develop an internal source of evaluation, (10) become more trusting of himself or herself (p. 88).

In addition, Landreth (2002) distinguished the difference between objectives for play therapy and objectives of the relationship. This second set of objectives focuses on facilitating the relationship between the child and the play therapist during each play therapy session. In CCPT, the foundation of the relationship between the child and the play therapist allows the child to grow and change in a positive direction. It is important to note that facilitating the relationship within the playroom is an ongoing process each session. The following objectives pertain specifically to the CCPT relationship:

1. To establish an atmosphere of safety for the child.
2. To understand and accept the child's world.
3. To encourage the expression of the child's emotional world.
4. To establish a feeling of permissiveness.
5. To facilitate decision making by the child.
6. To provide the child with an opportunity to assume responsibility and to develop a feeling of control (Landreth, 2002, pp. 174-175).

As the therapeutic relationship is a crucial component in CCPT, so are the toys. The selection of toys in the playroom deserves special attention, but is not a substitute for the therapeutic relationship between the child and the therapist. In the playroom, toys are children's words, and play is their language (Landreth, 2002). Children use toys in the play therapy room to communicate their needs to the play therapist. Landreth (2002) proposed three categories of toys, emphasizing the importance of each in

facilitating expression and exploration: (1) real-life toys, (2) acting-out aggressive-release toys, and (3) toys for creative expression and emotional release (pp. 139-142). Children are then able to transfer their feelings onto the toys and distance themselves from those experiences that are unpleasant or painful. Winnicott (1971) referred to this same phenomenon and explained that children can transfer their feelings onto toys or transitional objects. However, it is important to note that a child-centered play therapist does not in any way use the toys to facilitate verbal communication between the child and the play therapist. The child is fully accepted in the play therapy room whether or not he or she chooses to verbally express him or herself. The play in and of itself is viewed as meaningful and healing for the child.

The professionals in the field of play therapy have explored the effectiveness of play therapy through numerous research studies for many decades. Ray, Bratton, Rhine, and Jones (2001) conducted a meta-analysis of 94 documents of outcome research studies on play therapy. The meta-analysis had a large effect size of .80 showing that the average amount of change by individuals between the treatment group and the control or comparison group was eight standard deviations, concluding that play therapy was an effective treatment for children. In addition, the meta-analysis showed that play therapy was effective for either gender, a variety of ages, across numerous settings, and for many presenting issues. More specifically, nine studies examining the effects of play therapy on children's anxiety and fears were included in the meta-analysis. Results in seven of the studies showed a decrease in children's anxiety. However, not all nine studies utilized CCPT.

The following three studies explored the effectiveness of CCPT with children ranging in age from 5 to 12. Schmidtchen and Hobrucker (1978) examined the effects of CCPT on reducing anxiety with 50 children, ages 9 to 13. The children significantly improved in their ability to be flexible socially and intellectually. Moreover, the children decreased in anxiety and behavior disorders in comparison to two nontreatment control groups.

Rae, Worchel, Upchurch, Sanner, and Daniel (1989) studied 46 children between the ages of 5 and 10 years old from a stratified random sample. Each child was assigned to one of four conditions: verbally oriented support where children were involved in verbal discussions; diversionary play where children were allowed to play with toys but not fantasy play; therapeutic play where children participated in CCPT; and the control group where the children had no contact with the research assistant. The results showed that children's self-reports of hospital fears on a fear thermometer significantly decreased after having two 30-minute CCPT sessions. However, the children in each of the three comparison groups did not result in a reduction of fears whether receiving either verbal oriented support, diversionary play and allowed to play with toys, or no treatment.

Clatworthy (1978/1981) conducted a pretest-posttest design with repeated measures. She compared anxiety levels in 114 hospitalized children between the ages of 5 and 12 years old. This study had three phases: children hospitalized for two days, children hospitalized for four days, and children hospitalized for longer. Children in the experimental group participated in daily 30-minute sessions. A nurse play therapist conducted the therapeutic play sessions. She indicated that play was a deterrent for

anxiety in children during their hospitalization. The results suggested a trend in reducing anxiety levels in children with terminal illnesses measured with the Missouri Children's Picture Series (Sines, Pauker, & Sines, 1974).

In addition, more directive approaches of play therapy seem to also be effective with children ages 3 to 11. Cassell (1965) used brief puppet therapy with 40 children ages 3 to 11 years old before having a cardiac catheterization. The treatment group participated in a puppet therapy session prior to the cardiac catheterization and immediately afterward. The control group did not receive therapy, but was treated similarly to the experimental group. The results from observations of the children's behaviors and three parental questionnaires showed that children had fewer emotional disturbances during the cardiac catheterization after receiving puppet therapy and were more willing to return to the hospital for future treatment. Cassell discussed how these results supported the assumptions that when children were allowed to express themselves through the puppets, then they felt understood and more in control during the procedure.

Johnson and Stockdale (1975) used the Palmar Sweat Index (PSI) to indicate anxiety or arousal with 43 children ages 5 to 8. They noted that an interactive puppet show significantly reduced children's anxiety prior to and after the operation while hospitalized (Thomson & Sutarman, 1953). Their study noted that unfamiliar settings, especially hospitals, were stressful to children. They suggested that providing more psychological preparation to children decreased anxiety and stress about the unfamiliar setting and procedures.

Watson (1986) examined the effectiveness of play therapy and talk-write therapy on reducing anxiety in 30 students with learning disabilities ages 14 to 19 years old. Students were randomly assigned to one of the two treatment conditions or the control condition over 16 weeks. He defined play therapy using Axline's tenets and allowing the child to lead the play. However, with further explanation, he decided that the students would have access to a computer with a variety of games and considered this to be part of the play therapy interaction. He suggested that play therapy and talk-write therapy were not statistically significant in reducing anxiety and stress. In his study, he measured anxiety with the State-Trait Anxiety Inventory (STAI), surface temperature, and a measure of blood volume to indicate psychological stress levels (Spielberger, 1977).

Not only examining the effectiveness of play therapy, research has been conducted on the differences in attitudes during several play therapy sessions. Moustakas (1955) explored the differences in intensity and frequency of negative attitudes during four play therapy sessions with a total of 18 disturbed and well-adjusted 4 year old children. He reported that most disturbed children exhibited anxiety associated with cleanliness and orderliness, meaning that the child felt compelled to keep things neat and tidy throughout each session. However, these behaviors were not common among the well-adjusted children. Moustakas found that although both groups of children expressed similar kinds of negative attitudes, well-adjusted children expressed these feelings less frequently and not as strongly. Therefore, Moustakas suggested that as therapy progresses and anxiety decreases, it is possible that the

negative attitudes expressed by disturbed children may become similar to those of well-adjusted children such that they express themselves clearly and directly.

Overall, the literature supports play therapy as an effective modality in decreasing children's anxiety. In particular, a few CCPT studies have proven to be effective with children and their anxiety. Although most of these studies specifically addressed children's anticipatory anxiety in hospital settings before a medical procedure, it is possible to extrapolate these results to general anticipatory anxiety. Therefore, the results may imply its effectiveness in alleviating children's anticipatory anxiety when entering mental health settings. Most importantly, play therapy provides a safe environment where children can communicate in their natural language unlike traditional talk therapy. Hence, play, as their primary mode of communication and with their limited verbal language, can reduce children's anxiety.

A Basis for Using Animal-Assisted Therapy

Animals have been used for companionship for centuries and informally in the mental health field for decades (Mallon, 1992). Beck and Katcher (1984) reviewed the literature available on incorporating an animal into therapy. Their exhaustive search produced almost entirely descriptive and hypothesis-generating studies. In other words, the studies that were found were primarily based on the process of conducting animal-assisted therapy sessions rather than the effectiveness of the session.

Similarly, Garrity and Stallones (1998) gathered all the research available on animal-assisted therapy from 1990 to 1995. They found more than 100 papers that examined the effects of animals on humans. However, only 25 publications met the established criteria. Of the published papers, 4 were descriptive in nature, 16 presented

correlational research, and 5 papers qualified as experimental research. The studies showed that animal-assisted therapy or in some cases just the presence of an animal had a positive effect on biobehavioral responses in people. Chandler (2001) proposed that animals can relieve anxiety and facilitate a relationship between the client and therapist.

Animal-assisted therapy is a goal-directed intervention that can offer several benefits to people of all ages. Specifically, some common goals for mental health treatment are as follows:

1. To improve socialization and communication.
2. To reduce isolation, general anxiety, and manipulative behaviors.
3. To improve affect and mood, lessen depression, and/or provide pleasure and affection.
4. To improve memory and recall.
5. To address grieving and loss issues.
6. To improve self-esteem, feelings of self-worth, cooperation, and problem-solving ability.
7. To improve reality, concentration and attention, and engagement.
8. To increase expression of feelings and ability to trust others.
9. To learn appropriate touch (Chandler, 2001; Mallon, 1992).

As shown with the goals of animal-assisted therapy, the animal's primary purpose in therapy is to facilitate a safe and therapeutic alliance in order to increase the amount of verbalizations with children and adults. The therapist utilizes the trained therapy animal to connect and communicate with the adult or child.

Levinson (1962) was one of the first to integrate animals into therapy naming it pet therapy. He considered his dog, Jingles, his co-therapist. Levinson (1969) was one of the first to write and report on his therapeutic interventions using his dog with troubled children. He suggested that the animal served as a transitional object to lessen anxiety (Levinson, 1969). In animal-assisted therapy, a transitional object, the animal, helps children establish a bond or connection with the animal that later extends to the therapist (Martin & Farnum, 2002; Soares, 1985; Winnicott, 1971). He reported that the animal was less threatening; therefore, it was easier for children to form an initial relationship with him in session. Hence, the child establishes a relationship with the animal and then extends that bond to the therapist (Winnicott, 1986). In addition, animals provide affection and unconditional acceptance to children (Hoelscher & Garfat, 1993; George, 1988; Levinson, 1969; MacDonald, 1979; Mallon, 1992; Mallon, Ross, & Ross, 2000).

In the following four experimental studies, animal-assisted therapy seems to be an effective modality for decreasing children's anxiety. Hansen, Messinger, Baun, and Megel (1999) conducted a similar study to examine the effects of the presence of a companion dog on 34 children while at a pediatric clinic for a physical examination. The children ranged in age from 2 to 6 years old. Children were assigned to either the treatment group or the control group, but physiologic arousal was measured in both groups. Children in the treatment group were instructed to interact with the dog as desired. Systolic, diastolic, and mean arterial blood pressures, heart rate, and peripheral skin temperature measurements were taken at baseline and two-minute intervals. Behavioral distress was observed and assessed on the revised Observation Scale of

Behavioral Distress (Jay & Elliott, 1986). Although their results were not statistically significant, they suggested that children's behavioral distress during the physical examination did decrease in the presence of an animal. However, the children did not show significant decreases in physiological measures on the children's blood pressure, heart rate, and fingertip temperatures.

Several studies reported that participants had decreased blood pressure and reduced heart rate after interacting with an animal (Friedmann, Locker, & Lockwood, 1993; Katcher, 1985). Specifically, Friedmann, Katcher, Thomas, Lynch, and Messent (1983) conducted a crossover study with 38 children ages 9 to 15. Each child read aloud in the presence of a dog and without the presence of a dog. In the presence of a dog, the children's arousal indicators such as cardiovascular and psychological measures decreased. Nagengast, Baun, Megel, and Leibowitz (1997) studied the presence of a dog and its effect on 23 healthy children's physiological arousal and behavioral distress during a physical examination. This study was also a crossover design where both groups were exposed to each condition with and without the presence of a dog. The results showed a statistically significant decrease on the children's behavioral distress and physiological arousal, specifically their heart rate and blood pressure.

Robin, ten Bensele, Quigley, and Anderson (1983) surveyed 269 disturbed children who had been institutionalized for delinquency problems. They concluded that an animal was important in the lives of these children, because the animal served as someone for them to love. In this quantitative study, a control group of well-adjusted children reported that an animal was important and taught them responsibility. Robin

and ten Bense (1985) showed that the presence of an animal decreased physiological arousal and anxiety in children.

In addition, other studies have concluded that animal-assisted therapy has the potential to enhance the physical and emotional well-being of people (Friedmann, 2000; Levinson, 1969; Katcher, 1981; Mallon, 1992; Mallon, Ross, & Ross, 2000). In his case studies, Fine (2000) suggested that animals lowered anxiety and increased participation in therapy. Moreover, the use of trained therapy animals in therapeutic sessions seems to have a positive impact, but also the mere presence of a trained therapy animal seems to positively affect children. For instance, animals matched with children in unfamiliar places appeared to make the situation feel less threatening and safer (Beck & Katcher, 1983; Katcher, 1985). Condoret (1977) showed that animals can help improve children's receptiveness to new environments. Peacock (1986) observed and reported that while conducting interviews with children, the presence of her dog had a calming and cooperative effect on the children. Moreover, the presence of her dog facilitated the development of a warm environment. She also suggested that the initial tension was diminished due to the presence of her dog.

Blue (1986) found that animals hold value in children's lives for reasons such as attachment, comfort, and safety. Triebenbacher (1998) said that children's attachment to an animal has a positive impact on their self-esteem. Messent and Serpell (1981) suggested that a trained therapy animal was better than toys for children, because the relationship between the child and the animal is tied to reality. Ross (1983) supported this notion indicating that animals offered more therapeutic opportunities than toys.

Animals provide a calming presence for children (Baun et al., 1984; Mallon, Ross, & Ross, 2000). Levinson (1969) also suggested that animals present an element of stability for children. Moreover, animals enhance the consistency in the therapeutic environment. The presence of the animal can also contribute an element of safety (Gonski, 1985; Katcher, 1983; Katcher & Wilkins, 1993). Animals can normalize stressful situations for children (Hart, 2000).

In addition, animals can complement the therapeutic relationship while decreasing child's initial reservations about therapy and serve as a bridge in communication between the child and the therapist. Animals can promote rapport within the therapeutic relationship between the child and the therapist (Arkow, 1982; Mallon, 1992). However, most research on animal-assisted therapy has been conducted with adults. Wilson (1991) conducted a study with 92 college students. Students were assigned to one of the following three groups: to read aloud, read quietly, or pet a friendly dog. The results showed that petting the friendly dog produced a similar anti-anxiety effect as reading quietly.

Beck, Hunter, and Seraydarian (1986) studied psychiatric inpatient adults. The experimental group had meetings in a room with birds while the control group had meetings in a room without birds. The clients perceived the therapist as less threatening in the presence of an animal and meeting attendance increased. The authors also suggested that the perceived quality of the environment may have influenced group attendance.

Barker and Dawson (1998) conducted a pre-treatment and post-treatment crossover design study with 230 adult hospitalized psychiatric patients. The study

compared their anxiety levels on the State-Trait Anxiety Inventory before and after a single 30 minute animal-assisted therapy group session or a single 30-minute therapeutic recreation session (Spielberger, 1977). The results indicated that animal-assisted therapy significantly decreased state anxiety levels in hospitalized psychiatry patients when compared with the results from the comparison condition.

Barker, Pandurangi, and Best (2003) assigned 35 adult patients waiting for electroconvulsive therapy to 15-minutes of animal-assisted therapy or 15-minutes of magazine reading in a controlled crossover design. Patients completed self-report interviews and visual analogue scales before and after the treatment or standard condition. In addition, the nurses completed the visual analogue scales on each patient in the study. The results suggested benefits of animal-assisted therapy with patients before having electroconvulsive therapy. Specifically, patients' fear significantly reduced and was not only statistically significant, but also clinically significant. However, in this particular study animal-assisted therapy did not lower patients' anxiety. The authors attribute the lack of significance to using different measurements than in their previous study.

Barak, Savorai, Mavashev, and Beni (2001) showed that animal-assisted therapy with 20 elderly schizophrenic patients who were randomly assigned to weekly four-hour animal-assisted therapy or a reading and discussion group of current events. Over the 12 months, animal-assisted therapy had a positive effect on the treatment group's impulse control, self-care, and social functioning measured on the Social-Adaptive Functioning Evaluation (Harvey, Davidson, Mueser, et al., 1997).

The presence of an animal, although not considered animal-assisted therapy, seems to also positively impact participants in the following studies. Odendaal (2000) examined the levels of blood plasma in participants while interacting with a dog. During a positive interaction with an unfamiliar dog, stress levels decreased, blood pressure lowered, and significant changes in participants' biochemistry was measured. Straatman, Hanson, Endenburg, and Mol (1997) examined the difference between blood pressure and heart rate responses if an unfamiliar dog was placed in a man's lap. A baseline measure was established first for all 36 participants. Then, in the experimental group, the dog was placed in the lap of the participant, but nothing was placed in the laps of those in the control group. However, the results showed no significant differences between the experimental group and the control group biobehavioral responses.

Jennings, Reid, Christy, Jennings, Anderson, and Dart (1998) indicated that companion animals help to reduce blood pressure in patients at risk for cardiovascular problems. Miller and Ingram (2000) reported that the benefits of animal-assisted therapy for patients with coronary artery disease showed lowered heart rates, decreased blood pressures, and a reduction of anxiety.

Dhooper (2003) showed no significant difference between the experimental and control group comprised of 11 undergraduate, female students. The anxiety management training group was to help with relaxation training and imagery development. In this particular study, the experimental group sessions were conducted with the presence of a trained therapy dog. Each group met weekly for hour to an hour and a half for a total of 6 sessions. Each participant completed a battery of self-report

instruments: State-Trait Anxiety Inventory, Anxious Behavior Checklist, Dog Interaction Checklist, and the Pet Attitude Scale (Spielberger, 1977). However, both groups of college students did report less anxiety post-treatment and again at the follow-up interview.

Dashnaw Stiles (2001) conducted a critical review of the animal-assisted literature from 1985 to 2001. She found that overall animal-assisted therapy had little effect on changing physiological responses in the body. She also suggested that animal-assisted therapy was ineffective when using a trained therapy animal as the only therapeutic agent. Cieslak (2001) attempted to examine the development of rapport and the therapeutic relationship between the counselor and the client. The results were not significant showing that the trained therapy dog did not enhance or detract from the working alliance. Dickstein (1997) indicated limited support that the presence of an animal lowered anxiety and increased rapport. The results also suggested that the salivary cortisol was not a reliable predictor of anxiety with either group. However, the self-report on anxiety levels was reliable for both groups.

Overall, the previous studies indicate animal-assisted therapy may be an effective modality when working with children even though a significant portion of the research available has been conducted with adults. It is possible to extrapolate these results in order to support the use of animal-assisted therapy with children. Hence, the results may indicate its effectiveness in alleviating children's anticipatory anxiety when entering mental health settings.

A Beginning to Incorporate Play Therapy and Animal-Assisted Therapy

To date, only one published article discusses a model for combining play and animal-assisted therapy. Reichert (1994) used a group model to work with pre-adolescent girls ages 9 to 13 who had been sexually abused. Although she identified one of her treatment modalities as play, her description of play does not align with CCPT. She incorporated the use of a trained therapy dog with play to include nondirective and directive aspects throughout her three treatment phases. As part of the first phase, she introduced the trained therapy dog during the first session to help minimize any presenting anxiety and tension. The trained therapy dog was present in every session. The pre-adolescents were encouraged to talk about their past sexual abuse and later examine the details. They were given the option to disclose their experience of abuse by directly telling the group, telling a puppet, or whispering it to the trained therapy dog. In the second phase, Reichert had the pre-adolescents re-create the trauma with the purpose of enabling them to acknowledge their feelings associated with the event without minimization or exaggeration. In the final phase, education and prevention were addressed with the adolescents.

George (1988) discussed several advantages of incorporating child-centered therapy and animal-assisted therapy. She suggested that the presence of a trained therapy animal can increase the amount of opportunities for reflections of feelings and behavior. Children's self-esteem, self-worth, and empathy can increase under the conditions of child-centered therapy and animal-assisted therapy. Trained therapy animals can be used as a mirror in session similarly to the therapist in a child-centered therapy session. Neither the therapist nor the trained therapy animal intervenes in the

child's therapeutic process; hence, allowing and trusting the child's self-directedness (Axline, 1969). The trained therapy animal can assist the child in exploration and/or participate in the child's fantasies or stories. The presence of the trained therapy animal helps the child distinguish between fantasy and reality.

With some mixed results, the current research suggests that animal-assisted therapy maybe an effective modality in minimizing children's anxiety. The impacts are positive on children's physiological and psychological health. Trained therapy animals compliment the therapeutic process in order to help children become more receptive and calmer in new and unfamiliar environments.

An Overview of the Biobehavioral Measurements

Anxiety produces a physiological arousal in the body. Jemerin and Boyce (1990) supported the notion that heart rate and blood pressure were sensitive measurements of children's psychophysiologic responsiveness to their environment. They also suggest that these particular measures are fairly noninvasive. Faust, Olson, and Rodriquez (1991) examined 26 children ranging in age from 4 to 10 years old. The children were same-day surgery patients and had prior surgeries. Each group had matched participants according to gender, age, and previous number of surgeries. Children were exposed to the standard hospital procedures for surgery, viewed a tape alone of a child "modeling" the hospital procedures and ways to cope, or viewed the same tape with his or her mother. They measured physiological arousal in children according to their heart rate, sweat level, and behavioral observations. With an increase in anxiety, the body's response significantly alters its' biobehavioral output. Some people exhibit severe symptoms while others experience only minor signs of anxiety. For some, fidgeting,

sleeping problems, headaches, rapid heart rate, dizziness, or nausea can indicate anxiety. It is also common for people with anxiety to experience a rapid increase in their galvanic skin response, an increase in muscle tension (EMG), and a decrease in body temperature. However, the opposite is true when people are less anxious; they experience a decrease in their galvanic skin response, a decrease in EMG, and an increase in temperature (Faust, Olson, & Rodriguez, 1991). Kuno (1934/1956) showed that sweat produced from anxiety differed from thermal sweating. With this difference, it was noted that anticipatory apprehension would not cause any changes in the body's overall sweating; however, it induced sweating on the fingertips.

BodyMedia, Incorporated created the SenseWear® PRO 2 armband for researchers and clinicians (BodyMedia, Inc., Pittsburgh, PA, www.bodymedia.com). This second generation armband collects data about the body's physiological responses through sensors on the inside of the armband. These sensors specifically measure the following: galvanic skin response as an indicator of evaporative heat loss from physical activity and emotional stimuli, activity level or accelerometer as the motion on the body of exerted energy, skin temperature as the body's core temperature, heat flux as the amount of heat that is dispersed from the body, and near-body temperature as the temperature of the cover of the side armband. For the purpose of this study, the data produced by the galvanic skin response, skin temperature, and activity level will be collected and analyzed.

The armband can store up to 14 days of continuous data. The armband was worn by the Pittsburgh Steelers, Federal Aviation Agency's Regional Aircraft Rescue and Fire Fighting Training Center, and participants in a sleep disorder study at the

University of Pittsburgh School of Medicine. After numerous wearability tests, the armband was shown to be comfortably worn, able to fit a variety of people such as professional football players and small children, and be in less obtrusive area on the body to obtain accurate and reliable measurements (Kasabach, Pacione, Stivoric, Teller, & Andre, 2002). The armband has been used in numerous studies to examine the reliability and validity of the instrument's measurements. In one particular study, the accuracy of the energy expenditure was assessed. It was determined that the armband was accurate (Jakicic, Marcus, Gallagher, Randall, Thomas, Goss, & et al., 2004). Another study supported these results determining that the armband was valid and reliable in estimating energy expenditure (Fruin & Rankin, 2004).

Summary

Anxiety affects adults as well as children and in differing ways. It is developmentally appropriate for children to experience age-related anxieties from stranger anxiety to monsters to realistic fears (Castellanos & Hunter, 1999). Anticipatory anxiety may deter parents from seeking mental health services for themselves and/or their children (Graber, Graber, & Spizman, 1993). No matter the reason for the initial anxiety, children's anxiety may impede the therapeutic process. Therefore, it is important to examine processes that may eliminate or at best minimize children's anxiety when starting mental health services. CCPT aims to facilitate a warm, caring environment that is conducive to reducing children's anxiety (Axline, 1969). Play is children's natural medium of communication in order to allow for growth and development. Therefore, CCPT allows children to express themselves naturally rather than forcing them to verbally express themselves (Landreth, 2002). As children are able

to communicate in their own language, their anxiety is minimized. Moustakas (1955) also reported that disturbed children tend to exhibit anxiety associated with cleanliness and orderliness. However, as therapy progresses, then anxiety decreases.

CCPT lends support to alleviating children's anxiety. Ray et al. (2001) concluded that play therapy was an effective modality for treating children with many presenting symptoms including anxiety. Specifically, numerous play therapy studies with hospitalized children that showed a decrease in anxiety after having play-based therapy sessions (Birenbaum, 1980; Cassell, 1965; Clatworthy, 1981; Golden, 1983; Johnson & Stockdale, 1975; Rae, Worchel, Upchurch, Sanner, & Daniel, 1989). Play therapy facilitated children in minimizing their anxiety through the following: (1) play as their natural medium of communication (Axline, 1969; Barnett & Storm, 1981; Barnett, 1984); (2) a safe, contained environment to fully express themselves (Axline, 1969; Landreth, 2002; Moustakas, 1955); and (3) the opportunity to play out their experiences (Billington, 1972; Meer, 1985; Watson, 1986).

Furthermore, animal-assisted therapy supports the presence of an animal in therapeutic settings to minimize children's initial anxiety. Along with the therapist, the trained therapy animal (1) becomes a transitional object (Levinson, 1969; Winnicott, 1971), (2) provides optimal therapeutic conditions (Baun et al., 1984; Hoelscher & Garfat, 1993; Mallon, 1992; Mallon, Ross, & Ross, 2000), and (3) enhances physical and emotional well-being (Friedmann et al., 1993; Jennings et al., 1998; Katcher, 1981). More specifically, animal-assisted therapy research seems to support the possibility for decreasing initial anxiety for adults and children (Barker & Dawson, 1998; Condoret, 1977; Fine, 2000).

Thus far, the fields of play therapy and animal-assisted therapy have remained separate. The studies in both fields form a solid foundation for the benefits of each as individual therapy modalities. To date only one qualitative study has touched on the notion of incorporating play therapy and animal-assisted therapy. Therefore, no studies have yet been published that test the efficacy of the incorporation of play therapy and animal-assisted therapy and assess the impact upon children's initial anxieties when entering therapy.

CHAPTER II

METHODS AND PROCEDURES

This chapter introduces the methods and procedures that were utilized in this study. Included in this chapter are the definition of terms, a list of hypotheses, descriptions of the instruments that were utilized for data collection, a discussion of the selection of participants, specific methods of data collection, a description of the treatment, and an explanation of the data analysis procedures. In this study, the experimental group had one individual 30-minute play therapy session with the presence of a trained therapy dog and the comparison group had one individual 30-minute play therapy session without the presence of a trained therapy dog.

Definition of Terms

Anxiety is defined as an increase in a child's biobehavioral measurements: galvanic skin response and temperature. Operationally defined for the purpose of this study, anxiety is represented by an increase in a child's measurement on the SenseWear® PRO 2 armband monitor (BodyMedia, Inc., Pittsburgh, PA, www.bodymedia.com).

Child-centered play therapy (CCPT) is defined for purposes of this study as a "dynamic interpersonal relationship between a child and a therapist trained in play therapy procedures who provides selected play materials and facilitates the development of a safe relationship for the child to fully express and explore self (feelings, thoughts, experiences, and behaviors) through play, the child's natural medium of communication, for optimal growth and development" (Landreth, 2002, p. 16). Descriptions and examples of CCPT skills are listed in Appendix D.

Animal-assisted therapy (AAT) is defined by Delta Society (2004) as a “goal-directed intervention in which an animal meeting specific criteria is an integral part of the treatment process. AAT is delivered and/or directed by a health/human service provider working within the scope of his/her profession. AAT is designed to promote improvement in human physical, social, emotional, and/or cognitive functioning [thinking and intellectual skills]” (p. 11). For the purpose of this study, animal-assisted therapy is operationally defined as a nondirective intervention where the child is introduced to the trained therapy dog before entering the play therapy room and then allowed to interact as little or as much as he or she chooses to interact with the trained therapy dog while in the play therapy room.

Biobehavioral measurement is defined as physiological results delivered by a monitor that the child wore during the session measuring the child’s galvanic skin response, temperature, and activity level. Operationally defined for the purpose of this study, biobehavioral measurement is a child’s measurement on the SenseWear PRO 2 armband monitor.

Hypotheses

The purpose of this study will be accomplished with the following hypotheses:

1. There will be no statistical significant difference between the experimental group and the comparison group means within the first 5-minutes of the play therapy session on the SenseWear PRO 2 armband monitor for the following:

- (a) galvanic skin response,
- (b) temperature, and
- (c) activity level.

2. There will be no statistical significant difference between the experimental group and the comparison group means within the middle 5-minutes on the SenseWear PRO 2 armband monitor for the following:

- (a) galvanic skin response,
- (b) temperature, and
- (c) activity level.

3. There will be no statistical significant difference between the experimental group and the comparison group means within the last 5-minutes on the SenseWear PRO 2 armband monitor for the following:

- (a) galvanic skin response,
- (b) temperature, and
- (c) activity level.

4. There will be no statistical significant difference between the experimental group and the comparison group overall means on the SenseWear PRO 2 armband monitor for the following:

- (a) galvanic skin response,
- (b) temperature, and
- (c) activity level.

5. There will be no statistical significant difference between the experimental group and the comparison group on the pre-treatment and post-treatment scores on the heart rate monitor.

Instruments

Behavioral Assessment System for Children-Parent Rating Scale

The Behavioral Assessment System for Children-Parent Rating Scale© (BASC-PRS) was developed in 1992 by Cecil Reynolds and Randy Kamphaus (AGS Publishing, Circle Pines, MN, www.agsnet.com). It is a self-administered test for parents that require approximately 10 to 20 minutes to complete. The BASC-PRS is a comprehensive measure of both adaptive and problem behaviors in the home setting and the community. The assessment targets three age levels: preschool (2 ½-5), child (6-11), and adolescent (12-18). The form contains descriptors of behaviors that the parent rates on a four-point scale of frequency: never, sometimes, often, and almost always.

The BASC-PRS separates clinical problems into broad composites of Externalizing Problems and Internalizing Problems. Also, the BASC-PRS is composed of subscales and composites containing similar content at all age levels (Reynolds & Kamphaus, 1992). The subscale Anxiety assesses the child's tendency to be nervous, fearful, or worried about real or imagined problems.

The BASC-PRS established internal-consistency reliabilities for the composite scores in the middle 0.80s to low 0.90s at all three age levels and both genders. Test-

retest reliability yielded values of 0.85, 0.88, and 0.70 for the three age levels. Interrater reliability had a mean correlation of approximately 0.6 (Reynolds & Kamphaus, 1992).

The Child Behavior Checklist, the Personality Inventory for Children-Revised, the Conners' Parent Rating Scales, and the Behavior Rating Profile were correlated with the BASC-PRS. The correlations showed that externalizing behaviors are measured more consistently than internalizing or adaptive behaviors. The results of the BASC-PRS support construct validity and establish factorial and discriminate validity.

SenseWear PRO 2 Armband Monitor

The SenseWear PRO 2 armband monitor was developed by BodyMedia as a personal training tool to monitor physiological states of the body. This armband device is small and portable with the capability for wireless communication with a personal computer. All information stored in the armband can then be transferred to a personal computer producing charts and graphs with the data. The armband measures galvanic skin response, skin temperature, activity level, and other information not pertinent to this study.

Heart Rate Monitor

The cardio digital heart rate monitor was developed by Tanita Corporation as a personal training tool to monitor heart rate (Tanita Corporation of America, Inc., Arlington Heights, IL, www.tanita.com). For this study, the 6102 Cardio® heart rate monitor was used. This battery-operated monitor is portable and hand-held. The child places the tip of his or her index finger gently on the pulse sensor pad. The child's finger stays on the sensor pad until the heart blinks steadily. The heart rate then appears on the display.

Selection of Subjects

Human subjects approval was obtained from the University of North Texas Institutional Review Board prior to the recruitment of subjects for this study. Subjects for this study were recruited from two settings. In one setting, a mental health clinic that serves low-income clients on a sliding fee scale in northern Texas, the sample studied was composed of 10 volunteer children, ages 4 to 11. These children were selected from a list of clients awaiting services, but who had never previously received play therapy services. From the second setting, a comparison sample was comprised of 41 volunteer children, ages 4 to 11, at a Title I public elementary school in an urban area of northern Texas. The mental health clinic and elementary school are located in the same community. These children were referred for services through the established referral system at the elementary school. A school meets Title I criteria in Texas if over 50% of the school population qualifies for free or reduced cost lunch according to federal standards.

The selected school has a population that is 51.9% economically disadvantaged. The ethnic distribution of the selected school is as follows: 10.5% African American, 28.6% Hispanic, 59.4% White, .3% Asian/Pacific Islander, and 1.2% Native American. Children were eligible to participate based on the following criteria: (1) the child's parent or guardian agrees to and signs a consent form (Appendix A), (2) the child, ages 7 to 11, agrees and signs an assent form (according to human subjects protocol) (Appendix A), (3) the child speaks English, (4) the child is not currently in play therapy or any other form of psychotherapy, (5) the child has never received play therapy services prior to this study, and (6) the child passes the animal screening (Appendix C).

The parents and/or guardians of the children who meet the previous criteria completed the BASC-PRS. Based on the BASC-PRS scores, Externalizing Problems and Internalizing Problems, the child's age, and the child's gender, I matched participants. However, children did not have to score high on the anxiety subscale or any other subscale. It was crucial that the children in each group passed the animal screening in order to maintain equality in the groups. Moreover, children who were afraid of dogs were eliminated from the study to reduce group bias and increase the strength of the matched groups. Then, the children were assigned to either the experimental group that received one individual play therapy session with a trained therapy dog or the comparison group that received one individual play therapy session.

Collection of Data

The 10 children from the clinic setting and 41 children from the school setting were divided into two matched groups. Specifically, 5 children from the mental health clinic were assigned to the treatment group and the other 5 children were assigned to the comparison group. Of the 41 children from the school setting, 21 children were in the experimental group and the other 20 children were assigned to the comparison group. Half ($n=26$) were assigned to the treatment group, play therapy with the presence of a trained therapy dog, and half ($n=25$) were assigned to the comparison group, play therapy. This quantitative study is a matched comparison group time series experimental design (Vogt, 1999).

Children, ages 4 to 11, who had not received previous play therapy services and were on the waiting list at the selected clinic were eligible to participate in this study. The children on the waiting list typically are brought to the clinic with the following

presenting problems: aggressive or acting out behaviors, anxious or withdrawn behaviors, depressed behaviors, and/or attention or hyperactive behaviors. Parents and/or guardians were mailed an introductory letter explaining the purpose, methods, and benefits of the study. The letter asked parents and/or guardians to notify the selected clinic or I directly if they decided to allow their child to participate in the present study. I followed up the letter with one reminder phone call.

I then scheduled individual consultations with the parents and/or guardians of the children participating in the present study. During the consultation, a full explanation of the procedures and any risks was given to the parents and/or guardians of the children who participated in this study. After signing the consent form, I completed the animal screening and answered any other questions. At this time, the parent and/or guardian then completed the BASC-PRS and hand-returned it to I. After completion of the initial consultation and paperwork, I scheduled the child's session with the parent and/or guardian.

At the selected elementary school, I sent letters home to the parents and/or guardians of children, ages 4 to 11, who were referred for services. Typically, teachers and/or parents refer children for services at the selected school for the following presenting problems: aggressive or acting out behaviors, attention problems, hyperactivity or out of control behaviors, depressed behaviors, and/or anxious or withdrawn behaviors. The letter included an explanation of the study outlining the purpose, methods, and benefits, the consent form, and the BASC-PRS. The letter asked for parents and/or guardians to notify I directly if they had any questions about their child participating in the present study. Following the letter, I called each parent

and/or guardian one time to answer questions pertaining to the study and schedule a parent consultation if necessary.

All information was kept confidential. This includes names and all identifying information about the children, parents, and/or guardians. This information was not disclosed in any discussion or publication of this material. A code number was recorded on each video tape, instrument, and biobehavioral measurements to provide further confidentiality. I was the only one with a list of the participants' names. All data and participant names were kept in a secure location. At the conclusion of this study, the participant names list was destroyed.

Description of Treatment

I conducted the each individual session for children in the treatment and comparison groups. Each child from the experimental group received one 30-minute individual CCPT session with the presence of a trained therapy dog. Each child in the comparison group received one 30-minute individual CCPT session without the presence of a trained therapy dog. Prior to the session, I met the child and introduced herself and the monitor that each would wear in session (Appendix B). I told each child that he or she would wear this special watch when going to the special playroom one time. I also informed each child that the special watch would beep and then "tickle" or vibrate (depending on the age of the child) on his or her arm when it started. Then, I asked each child if he or she would like to try it on his or her arm. Next, each child was allowed and encouraged to put the monitor on and off his or her arm, push the button to start and shut off the monitor, and open the cover that protected the battery. At the end of the introduction, I told each child that next time he or she wore the special watch to

the playroom, the buttons were not for pushing and that the special watch was only for wearing. I obtained written assent from children of each group, ages 7 to 11, before the play therapy session (Appendix A). Thus, according to human subjects protocol, children ages 4 to 6 did not need to sign written assent.

Experimental Group

The experimental group went to the play therapy room with the presence of a trained therapy dog. Prior to the day of the session, I introduced herself to the child and explained that she was attaching the SenseWear PRO 2 armband monitor to the child's arm in the waiting room at the selected clinic or outside the child's classroom door at the selected school. On the day of the session, I reintroduced herself and helped the child put on the special watch. The child wore the SenseWear PRO 2 armband monitor throughout the entire session. After the armband was in place, I obtained the trained therapy dog from her assistant and introduced the dog to the child. I told the child that "Rusty," the trained therapy dog, was coming to the special playroom with them and that he or she could choose to play with the dog or not while in the playroom. Then, the child, the trained therapy dog, and I walked to the play therapy room. I conducted individual CCPT sessions with the experimental group one time for 30-minutes. I introduced the play therapy room and said to the child, "This is the special playroom and in here you can play with the toys in a lot of the ways you would like to."

All sessions were conducted in the play therapy room at the selected clinic or the selected school. The play therapy room at the selected clinic was located down the hall from the waiting room. The play therapy room at the selected school was located in a portable classroom outside of the main elementary building connected by an open

breezeway. Both rooms were equipped with the following toys, which conformed to the Landreth (2002) recommendations:

- | | | |
|------------------------------|----------------------------|--------------------------|
| (1) Plastic domestic animals | (16) Scotch tape | (31) Camera |
| (2) Plastic zoo animals | (17) Masking tape | (32) Binoculars |
| (3) Plastic dinosaurs | (18) Crayons | (33) Musical instruments |
| (4) Toy gun/knife/sword | (19) Construction paper | (34) Cash register/money |
| (5) Rope | (20) Play dough | (35) Medical kit |
| (6) Handcuffs/key | (21) Egg cartons | (36) Bandages |
| (7) Toy soldiers | (22) Bubbles | (37) Pacifier |
| (8) Bop bag | (23) Dramatic play clothes | (38) Nursing bottles |
| (9) Foam bat/ball | (24) Mask and hats | (39) Pillow/blanket |
| (10) Wood blocks | (25) Magic wand | (40) Baby dolls/clothes |
| (11) Toy car/truck | (26) Riding car | (41) Play kitchen/food |
| (12) Sand | (27) Telephone | (42) Puppets |
| (13) Shovel/sift/bucket | (28) Cell phone | (43) Puppet theatre |
| (14) Craft table | (29) Flashlight | |
| (15) Masking tape | (30) Dollhouse/family | |

While in the play therapy room, I responded to the child through nonverbal and verbal communication. According to CCPT guidelines, appropriate nonverbal communication in the play therapy room conforms to the following guidelines: (1) the play therapist maintains an open posture and leaning forward, (2) the play therapist appears interested in child, (3) the play therapist is comfortable and relaxed, (4) the play therapist's tone and expression are congruent with the child's affect, (5) the play

therapist's tone and expression are congruent with the play therapist's responses (Axline, 1947; Guerney, 1983; Landreth, 2002). In CCPT, appropriate verbal communication includes the following: (1) tracking behavior-verbally responding to the child's behaviors, (2) reflecting content-paraphrasing the child's verbal expressions, (3) reflecting feelings-verbalizing the child's emotions, (4) facilitating decision making and responsibility-empowering the child to decide or do for himself or herself, (5) facilitating creativity and spontaneity-freeing the child from rules or burdens that are not present in the play therapy room, (6) esteem-building and encouraging-allowing the child to feel capable and worthy, (7) facilitating the relationship-encouraging a positive, healthy therapeutic relationship between the child and the play therapist, (8) enlarging the meaning and facilitating understanding-verbalizing connections between the child's play and experiences, and (9) limit setting-providing structure within the permissive play therapy environment (Ray, in press). These skills are discussed in detail in Appendix D. The child-centered play therapist responded verbally in an appropriate rate with succinct and interactive responses. At the end of the 30-minute session, I said to the child, "Our time is up in the special playroom." Then, I asked the child to remove the SenseWear PRO 2 armband from his or her arm and I assisted if necessary. The child and I then walked back to the waiting room or the child's classroom and said goodbye.

Introduction of dog. I introduced the trained therapy dog to the child by saying, "This is Rusty, and he will be coming to the special playroom with us. You can choose to play with him if you want to." After this brief introduction, I did not reintroduce the dog when entering the playroom or encourage the child to interact with the dog in the

playroom. However, if the child chose to interact or comment on the dog, I responded with similar child-centered statements as previously mentioned.

Safeguards. Many safeguards were taken in order to minimize the possible risks associated with using a trained therapy dog with children. The first precaution was to prevent zoonotic transmissions which are diseases that can be transferred from animals to humans. The trained therapy dog was bathed 24 hours before any therapy sessions. I scheduled all sessions at the selected clinic at times and days when no other children were present in the waiting room. At the selected school, I utilized an assistant to care for the trained therapy dog while she picked up the children from their classrooms in order to limit the amount of distractions and possibly biasing the study results.

At all times, the trained therapy dog was on a leash until he entered the playroom. While in the playroom, the trained therapy dog was allowed off the leash in order to ensure his safety, but before leaving the room, the therapist put the leash back on the dog. Trained therapy animals should not be used in therapy sessions longer than two hours at a time with breaks at least every 30 minutes (Delta Society, 2004). Therefore, I scheduled no more than four sessions in a row with 10 minute breaks between each session. During these breaks, I's assistant gave the trained therapy dog the opportunity to relieve himself in the designated area. The trained therapy dog had access to his water bowl during each session and each break.

Training and preparation. The trained therapy dog is an American cocker spaniel that is five years old. He is a nationally certified Pet Partner through Delta Society at the highest level with a "complex" rating. The dog belongs to a senior faculty member who directs the animal-assisted therapy program. It is preferred that trained therapy animals

work directly with their handlers. However, it is appropriate for a trained therapy animal to work with another handler who has completed the Pet Partner training (Delta Society, 2004). I was a certified Pet Partner and able to work with trained therapy animals. In order to work with the trained therapy dog in a play therapy setting, she and the trained therapy dog spent approximately 22 hours getting acquainted with each other. Then, I and the trained therapy dog established a routine getting to and from the playroom leading to a feeling of safety and familiarity. I and the trained therapy dog developed a routine at both the selected clinic and the selected school. After a level of comfort was established, I and the trained therapy dog conducted 8 practice sessions in order to make any necessary adjustments to the procedures of this study and acclimate the dog to the play therapy environment. The volunteer children did not participate in this study.

Comparison Group

I reintroduced herself to the child and helped the child attach the SenseWear PRO 2 armband monitor to the child's wrist in the waiting room or outside the classroom door. The child wore the SenseWear PRO 2 armband monitor throughout the entire procedure. Then, the child and I walked to the play therapy room. I conducted individual CCPT sessions with the comparison group one time for 30 minutes. I and the child used a play therapy room equipped with the same toys and materials as previously mentioned. I introduced the play therapy room and said to the child, "This is the special playroom and in here you can play with the toys in a lot of the ways you would like to." During this time, I followed the same child-centered guidelines as stated previously. At the end of the 30-minute session, I said to the child, "our time is up in the special

playroom” and walked with the child to the waiting room or classroom. I removed the SenseWear PRO 2 armband from the child’s wrist and said goodbye to the child.

I was a doctorate level counseling student at the University of North Texas who was experienced in play therapy. I completed coursework in introduction to play therapy, group play therapy, filial therapy, and animal-assisted therapy at the University of North Texas. She also completed over 150 direct clinical hours of doctoral practicum and internship work with play therapy clients. I is a certified Pet Partner with the Delta Society Pet Partners program. I was the only therapist facilitating both therapeutic conditions. The assistant who cared for the trained therapy dog between sessions had also completed the Pet Partner training and animal-assisted therapy class at the University of North Texas.

Statistical Analysis

Initially, the results on the BASC-PRS, child’s gender, and child’s age were used to provide matched samples of participants. In order to determine if the groups were statistically significantly different, an analysis of variance (ANOVA) was calculated. After the completion of the study, the data from the SenseWear PRO 2 armband and the children’s pre-treatment and post-treatment heart rates were computed to examine the means with two factor repeated measures ANOVA. However, some children pushed the timestamp button on the armband. This means that when the child hit the button, the monitor was unable to record information for that particular minute. In order to preserve data and not delete entire cases, I averaged the measurements of the prior minute and the following minute to calculate and provide the missing data. I calculated missing data for a total of 7 minutes for 3 participants who pushed the timestamp button in session.

The repeated measures ANOVA with mixed factors was computed to test if statistically significant differences exist between the experimental group and the comparison group on the adjusted means for each of the five hypotheses using *SPSS for MS Windows Release 12.0* (Norusis, 1995). Statistical significance of the differences between means was tested at the 0.05 level. On the basis of the ANOVA, the hypotheses were either retained or rejected. Practical significance of the differences between treatments was tested with the eta squared (η^2) (Thompson, 2002). The analysis revealed if an effect size was present.

In the post hoc analysis, independent t-tests were run on the data and effect sizes were calculated with Cohen's d (Thompson, 2002). In order to control for possible relationships, correlations were run on the data. The average r was calculated for each of the scores for the experimental group and the comparison group for the following correlations between (1) activity and temperature, (2) activity and galvanic skin response, and (3) temperature and galvanic skin response. Then, the correlation r scores were transformed into z scores. After the average of the z scores was calculated, the scores were transformed back into r scores (Hinkle, Wiersma, & Jurs, 2003).

CHAPTER III

RESULTS AND DISCUSSION

This chapter provides a description of the statistical and practical analyses performed, as well as the specific results of each hypothesis tested in the present study. A discussion of the potential meaning of the obtained results, implications of the findings and recommendations for future research are also included. In this study, the experimental group had one individual 30-minute play therapy session with the presence of a trained therapy dog and the comparison group had one individual 30-minute play therapy session without the presence of a trained therapy dog.

Results

The results of this study are presented in the order the hypotheses were tested. Analyses of two factor repeated measures ANOVA with mixed factors were performed on Hypotheses 1 through 5. A level of significance of .05 was established as the criterion for either retaining or rejecting the hypotheses.

Participants in the experimental group and comparison group were matched according to gender, age, and scores on the Behavioral Assessment System for Children-Parent Rating Scale© (BASC-PRS), Externalizing Problems and Internalizing Problems (AGS Publishing, Circle Pines, MN, www.agsnet.com). The comparison of means for gender, age, and the BASC-PRS scores for Externalizing Problems and Internalizing Problems between the treatment and comparison groups was computed with a one-way analysis of variance. Table 1 represents the means and standard deviations for the experimental and comparison groups. Table 2 presents the eta squared (η^2) for the effect size to illustrate that the groups were statistically matched.

Table 1

Mean total scores for matching the treatment and comparison groups.

	Experimental Group (<i>n</i> =26) Pre-test	Comparison Group (<i>n</i> =25) Pre-test
Gender		
Mean	.58	.48
SD	.50	.51
Age		
Mean	7.90	7.90
SD	2.14	1.97
BASC-PRS Externalizing Behaviors		
Mean	61.81	61.20
SD	17.17	18.90
BASC-PRS Internalizing Behaviors		
Mean	58.65	58.56
SD	12.77	17.02
Total Cases = 51		

Note: Scores indicate experimental and comparison groups were matched.

Table 2

Analysis of variance for gender assignment to the treatment and comparison groups.

	Sum of Squares	<i>df</i>	Mean Square	<i>F</i> Ratio	Significance of <i>F</i>	η^2
Between Groups	0.12	1	0.12	0.47	0.50	<0.01
Within Groups	12.59	49	0.26			
Total Cases = 51						

Table 2 presents the *F* ratio for the effect size which was not significant at the <.05 level indicating that there was not a significant difference between the experimental and the comparison groups' gender. On the basis of this data, the groups had matched participants for gender. Table 2 also presents the η^2 for the effect size was less than .01 indicating negligible practical significance of the difference between groups.

Table 3

Analysis of variance for age assignment to the treatment and comparison groups.

	Sum of Squares	<i>df</i>	Mean Square	<i>F</i> Ratio	Significance of <i>F</i>	η^2
Between Groups	<0.01	1	<0.01	<0.01	0.99	<0.01
Within Groups	207.29	49	4.23			
Total Cases = 51						

Table 3 presents the *F* ratio for the effect size which was not significant at the <.05 level indicating that there was not a significant difference between the experimental

and the comparison groups' age. On the basis of this data, the groups had matched participants for age. Table 3 also presents η^2 for the effect size was less than .01 indicating negligible practical significance of the difference between groups.

Table 4

Analysis with an ANOVA for comparison of BASC-PRS Externalizing Problems assignment for the treatment and comparison groups.

	Sum of Squares	df	Mean Square	F Ratio	Significance of F	η^2
Between Groups	4.71	1	4.71	0.01	0.91	<0.01
Within Groups	15942.04	49	325.35			
Total Cases = 51						

Table 4 presents the F ratio for the effect size which was not significant at the <.05 level indicating that there was not a significant difference between the experimental and the comparison groups' BASC-PRS Externalizing Problems score. On the basis of this data, the groups had matched participants for Externalizing Problems. Table 4 also presents η^2 for the effect size was less than .01 indicating negligible practical significance of the difference between groups.

Table 5

Analysis of variance for BASC-PRS Internalizing Problems assignment to the treatment and comparison groups.

	Sum of Squares	df	Mean Square	F Ratio	Significance of F	η^2
Between Groups	0.11	1	0.11	<0.01	0.98	<0.01
Within Groups	11026.05	49	225.02			
Total Cases = 51						

Table 5 presents the *F* ratio for the effect size which was not significant at the <.05 level indicating that there was not a significant difference between the experimental and the comparison groups' BASC-PRS Internalizing Problems score. On the basis of this data, the groups had matched participants for Internalizing Problems. Table 5 also presents η^2 for the effect size was less than .01 indicating negligible practical significance of the difference between groups. Based on these analyses, the two research groups for this study were equally matched in all cited areas.

Hypotheses Results

Hypothesis 1. There will be no statistically significant difference between the experimental group and the comparison group means within the first 5-minutes of the play therapy session on the SenseWear® PRO 2 armband monitor for the following (BodyMedia, Inc., Pittsburgh, PA, www.bodymedia.com):

- (a) galvanic skin response,
- (b) temperature, and
- (c) activity level.

Table 6 presents the first 5-minute measurement means and standard deviations for the experimental and control groups. Table 7 presents the analysis of repeated measures ANOVA data for the galvanic skin response, showing the level of significance of the difference between the experimental and comparison group's mean scores.

Table 6

Mean scores for the first 5-minutes of galvanic skin response on the SenseWear PRO 2 armband monitor.

	Experimental Group (n=26)		Comparison Group (n=25)	
	Mean	SD	Mean	SD
Minute 1	0.53	0.70	0.55	1.15
Minute 2	0.58	0.77	0.55	1.10
Minute 3	0.67	0.94	0.55	1.01
Minute 4	0.75	1.09	0.52	0.82
Minute 5	0.82	1.20	0.53	0.80
Total Cases = 51				

Note: An increase in mean score indicates an increase in galvanic skin response.

Table 7

Analysis of repeated measures ANOVA data for the first 5-minutes of galvanic skin response as measured on the SenseWear PRO 2 armband monitor.

Source of Variation	Sum of Squares	<i>df</i>	Mean Square	<i>F</i> Ratio	Significance of <i>F</i>	η^2
Treatment	1.12	1	1.12	0.25	0.62	<0.01
Error	217.11	49	4.43			
Time	0.58	1.19(4)	0.49	2.24	0.14	<0.01
Interaction	0.88	1.19(4)	0.74	3.41	0.06	<0.01
Error	<u>12.71</u>	58.27(196)	0.22			
Total	232.409					
Total Cases = 51						

Table 7 presents the *F* ratio for the effect size which was not significant at the <.05 level indicating that there was not a significant difference between the experimental and the comparison groups' galvanic skin response measurements on the SenseWear PRO 2 armband monitor within the first 5-minutes of the play therapy session. On the basis of this data, Hypothesis 1(a) was retained. Table 7 also presents η^2 for the effect size was less than .01 indicating negligible practical significance as measured by the SenseWear PRO 2 armband monitor of the difference between groups. Table 7 also shows the interaction effect was less than .01 indicating negligible practical significance as measured by the SenseWear PRO 2 armband monitor and showed that the experimental and comparison group did not change differently over the first 5-minutes.

Table 8 presents the first five temperature measurement means and standard deviations for the experimental and control groups. Table 9 presents the analysis of repeated measures ANOVA data for the first 5-minutes of temperature, showing the level of significance of the difference between the experimental and comparison group's mean scores.

Table 8

Mean scores for the first 5-minutes of temperature on the SenseWear PRO 2 armband monitor.

	Experimental Group (<i>n</i> =26)		Comparison Group (<i>n</i> =25)	
	Mean	<i>SD</i>	Mean	<i>SD</i>
Minute 1	29.70	1.31	29.47	1.33
Minute 2	30.01	1.20	29.76	1.25
Minute 3	30.24	1.16	29.97	1.20
Minute 4	30.42	1.14	30.14	1.17
Minute 5	30.56	1.13	30.28	1.15
Total Cases = 51				

Note: An increase in mean score indicates an increase in temperature.

Table 9

Analysis of repeated measures ANOVA data for first 5-minutes of temperature as measured on the SenseWear PRO 2 armband monitor.

Source of Variation	Sum of Squares	<i>df</i>	Mean Square	<i>F</i> Ratio	Significance of <i>F</i>	η^2
Treatment	4.43	1	4.43	0.63	0.43	0.01
Error	347.44	49	7.09			
Time	22.13	1.06(4)	20.95	128.17	<0.01	0.06
Interaction	0.02	1.06(4)	0.02	0.11	0.75	<0.01
Error	<u>8.46</u>	51.76(196)	0.16			
Total	382.474					
Total Cases = 51						

Table 9 indicates the *F* ratio for the effect size which was not significant at the <.05 level indicating that there was not a significant difference between the experimental and the comparison groups' temperature measurements on the SenseWear PRO 2 armband monitor within the first 5-minutes of the play therapy session. On the basis of this data, Hypothesis 1(b) was retained. Table 9 also presents η^2 for the effect size was .01 indicating negligible practical significance as measured by the SenseWear PRO 2 armband monitor of the difference between groups. Table 9 also shows the interaction effect was less than .01 indicating negligible practical significance as measured by the SenseWear PRO 2 armband monitor and showed that the experimental and comparison group did not change differently over the first 5-minutes.

Table 10 presents the first five activity measurement means and standard deviations for the experimental and control groups. Table 11 presents the analysis of repeated measures ANOVA data for the first 5-minutes of activity, showing the level of significance of the difference between the experimental and comparison group's mean scores.

Table 10

Mean scores for the first 5-minutes of activity on the SenseWear PRO 2 armband monitor.

	Experimental Group (n=26)		Comparison Group (n=25)	
	Mean	SD	Mean	SD
Minute 1	3.38	1.49	3.34	1.07
Minute 2	3.21	1.30	3.31	1.04
Minute 3	3.35	1.27	3.33	1.12
Minute 4	3.29	1.23	3.32	1.23
Minute 5	3.33	1.15	2.91	1.29
Total Cases = 51				

Note: An increase in mean score indicates an increase in activity.

Table 11

Analysis of repeated measures ANOVA data for first 5-minutes of activity as measured on the SenseWear PRO 2 armband monitor.

Source of Variation	Sum of Squares	<i>df</i>	Mean Square	<i>F</i> Ratio	Significance of <i>F</i>	η^2
Treatment	0.31	1	0.31	0.05	0.82	<0.01
Error	293.11	49	5.98			
Time	1.93	3.28(4)	0.59	1.24	0.30	<0.01
Interaction	2.08	3.28(4)	0.63	1.34	0.26	<0.01
Error	<u>76.16</u>	160.85(196)	0.47			
Total	373.596					

Total Cases = 51

Table 11 presents the *F* ratio for the effect size which was not significant at the <.05 level indicating that there was not a significant difference between the experimental and the comparison groups' activity measurements on the SenseWear PRO 2 armband monitor within the first 5-minutes of the play therapy session. On the basis of this data, Hypothesis 1(c) was retained. Table 11 also presents η^2 for the effect size was less than .01 indicating negligible practical significance as measured by the SenseWear PRO 2 armband monitor of the difference between groups. Table 11 also shows the interaction effect was less than .01 indicating negligible practical significance as measured by the SenseWear PRO 2 armband monitor and showed that the experimental and comparison group did not change differently over the first 5-minutes.

Hypothesis 2. There will be no statistically significant difference between the experimental group and the comparison group means within the middle 5-minutes on the SenseWear PRO 2 armband monitor for the following:

- (a) galvanic skin response,
- (b) temperature, and
- (c) activity level.

Table 12 presents the middle five galvanic skin response measurement means and standard deviations for the experimental and control groups. Table 13 presents the analysis of repeated measures ANOVA data for the middle 5-minutes of galvanic skin response, showing the level of significance of the difference between the experimental and comparison group's mean scores.

Table 12

Mean scores for the middle 5-minutes of galvanic skin response on the SenseWear PRO 2 armband monitor.

	Experimental Group (n=26)		Comparison Group (n=25)	
	Mean	SD	Mean	SD
Minute 13	1.06	1.26	0.76	0.96
Minute 14	1.07	1.23	0.79	1.01
Minute 15	1.10	1.24	0.82	1.04
Minute 16	1.08	1.20	0.88	1.09
Minute 17	1.10	1.21	0.88	1.09
Total Cases = 51				

Note: An increase in mean score indicates an increase in galvanic skin response.

Table 13

Analysis of repeated measures ANOVA data for middle 5-minutes of galvanic skin response as measured on the SenseWear PRO 2 armband monitor.

Source of Variation	Sum of Squares	<i>df</i>	Mean Square	<i>F</i> Ratio	Significance of <i>F</i>	η^2
Treatment	4.09	1	4.09	0.63	0.43	0.01
Error	316.05	49	6.09			
Time	0.24	1.61(4)	0.15	5.31	0.01	<0.01
Interaction	0.09	1.61(4)	0.06	2.00	0.15	<0.01
Error	<u>2.25</u>	79.09(196)	0.03			
Total	322.729					

Total Cases = 51

Table 13 presents the *F* ratio for the effect size which was not significant at the <.05 level indicating that there was not a significant difference between the experimental and the comparison groups' galvanic skin response measurements on the SenseWear PRO 2 armband monitor within the middle 5-minutes of the play therapy session. On the basis of this data, Hypothesis 2(a) was retained. Table 13 also presents η^2 for the effect size was .01 indicating negligible practical significance as measured by the SenseWear PRO 2 armband monitor of the difference between groups. Table 13 also shows the interaction effect was less than .01 indicating negligible practical significance as measured by the SenseWear PRO 2 armband monitor and showed that the experimental and comparison group did not change differently over the middle 5-minutes.

Table 14 presents the middle five temperature measurement means and standard deviations for the experimental and control groups. Table 15 presents the analysis of repeated measures ANOVA data for the middle 5-minutes of temperature, showing the level of significance of the difference between the experimental and comparison group's mean scores.

Table 14

Mean scores for the middle 5-minutes of temperature on the SenseWear PRO 2 armband monitor.

	Experimental Group (n=26)		Comparison Group (n=25)	
	Mean	SD	Mean	SD
Minute 13	31.23	1.06	30.94	1.12
Minute 14	31.29	1.05	31.00	1.11
Minute 15	31.34	1.05	31.06	1.12
Minute 16	31.40	1.04	31.11	1.12
Minute 17	31.45	1.03	31.16	1.12
Total Cases = 51				

Note: An increase in mean score indicates an increase in temperature.

Table 15

Analysis of repeated measures ANOVA data for middle 5-minutes of temperature as measured on the SenseWear PRO 2 armband monitor.

Source of Variation	Sum of Squares	<i>df</i>	Mean Square	<i>F</i> Ratio	Significance of <i>F</i>	η^2
Treatment	5.30	1	5.30	0.91	0.35	0.02
Error	286.11	49	5.84			
Time	1.51	1.15(4)	1.32	126.13	<0.01	<0.01
Interaction	<0.01	1.15(4)	<0.01	0.09	0.80	<0.01
Error	<u>0.59</u>	56.16(196)	0.01			
Total	292.508					
Total Cases = 51						

Table 15 presents the *F* ratio for the effect size which was not significant at the <.05 level indicating that there was not a significant difference between the experimental and the comparison groups' temperature measurements on the SenseWear PRO 2 armband monitor within the middle 5-minutes of the play therapy session. On the basis of this data, Hypothesis 2(b) was retained. Table 15 also presents η^2 for the effect size was .02 indicating negligible practical significance as measured by the SenseWear PRO 2 armband monitor of the difference between groups. Table 15 also shows the interaction effect was less than .01 indicating negligible practical significance as measured by the SenseWear PRO 2 armband monitor and showed that the experimental and comparison group did not change differently over the middle 5-minutes.

Table 16 presents the middle five activity measurement means and standard deviations for the experimental and control groups. Table 17 presents the analysis of repeated measures ANOVA data for the middle 5-minutes of activity, showing the level of significance of the difference between the experimental and comparison group's mean scores.

Table 16

Mean scores for the middle 5-minutes of activity on the SenseWear PRO 2 armband monitor.

	Experimental Group (n=26)		Comparison Group (n=25)	
	Mean	SD	Mean	SD
Minute 13	3.06	1.32	2.78	1.10
Minute 14	2.94	1.28	2.95	0.99
Minute 15	3.13	1.17	2.88	0.99
Minute 16	3.13	1.09	2.73	1.12
Minute 17	3.04	1.21	2.74	1.16
Total Cases = 51				

Note: An increase in mean score indicates an increase in activity.

Table 17

Analysis of repeated measures ANOVA data for middle 5-minutes of activity as measured on the SenseWear PRO 2 armband monitor.

Source of Variation	Sum of Squares	<i>df</i>	Mean Square	<i>F</i> Ratio	Significance of <i>F</i>	η^2
Treatment	3.73	1	3.73	.70	.41	.01
Error	262.58	49	5.36			
Time	.35	3.41(4)	.10	.28	.86	<.01
Interaction	1.18	3.41(4)	.35	.96	.42	<.01
Error	<u>60.62</u>	166.88(196)	.36			
Total	328.459					
Total Cases = 51						

Table 17 presents the *F* ratio for the effect size which was not significant at the <.05 level indicating that there was not a significant difference between the experimental and the comparison groups' activity measurements on the SenseWear PRO 2 armband monitor within the middle 5-minutes of the play therapy session. On the basis of this data, Hypothesis 2(c) was retained. Table 17 also presents η^2 for the effect size was .01 indicating negligible practical significance as measured by the SenseWear PRO 2 armband monitor of the difference between groups. Table 17 also shows the interaction effect was less than .01 indicating negligible practical significance as measured by the SenseWear PRO 2 armband monitor and showed that the experimental and comparison group did not change differently over the middle 5-minutes.

Hypothesis 3. There will be no statistically significant difference between the experimental group and the comparison group means within the last 5-minutes on the SenseWear PRO 2 armband monitor for the following:

- (a) galvanic skin response,
- (b) temperature, and
- (c) activity level.

Table 18 presents the last five galvanic skin response measurement means and standard deviations for the experimental and control groups. Table 19 presents the analysis of repeated measures ANOVA data for the last 5-minutes of galvanic skin response, showing the level of significance of the difference between the experimental and comparison group's mean scores.

Table 18

Mean scores for the last 5-minutes of galvanic skin response on the SenseWear PRO 2 armband monitor.

	Experimental Group (n=26)		Comparison Group (n=25)	
	Mean	SD	Mean	SD
Minute 26	1.33	1.16	1.08	1.39
Minute 27	1.33	1.14	1.11	1.43
Minute 28	1.35	1.14	1.14	1.45
Minute 29	1.38	1.15	1.17	1.48
Minute 30	1.40	1.16	1.09	1.39
Total Cases = 51				

Note: An increase in mean score indicates an increase in galvanic skin response.

Table 19

Analysis of repeated measures ANOVA data for last 5-minutes of activity as measured on the SenseWear PRO 2 armband monitor.

Source of Variation	Sum of Squares	<i>df</i>	Mean Square	<i>F</i> Ratio	Significance of <i>F</i>	η^2
Treatment	3.74	1	3.74	0.45	0.51	<0.01
Error	405.13	49	8.27			
Time	0.14	1.80(4)	0.08	1.55	0.22	<0.01
Interaction	0.1	1.80(4)	0.05	1.06	0.34	<0.01
Error	<u>4.44</u>	88.19(196)	0.05			
Total	413.541					

Total Cases = 51

Table 19 presents the *F* ratio for the effect size which was not significant at the <.05 level indicating that there was not a significant difference between the experimental and the comparison groups' galvanic skin response measurements on the SenseWear PRO 2 armband monitor within the last 5-minutes of the play therapy session. On the basis of this data, Hypothesis 3(a) was retained. Table 19 also presents η^2 for the effect size was less than .01 indicating negligible practical significance as measured by the SenseWear PRO 2 armband monitor of the difference between groups. Table 19 also shows the interaction effect was less than .01 indicating negligible practical significance as measured by the SenseWear PRO 2 armband monitor and showed that the experimental and comparison group did not change differently over the last 5-minutes.

Table 20 presents the last five temperature measurement means and standard deviations for the experimental and control groups. Table 21 presents the analysis of repeated measures ANOVA data for the last 5-minutes of temperature, showing the level of significance of the difference between the experimental and comparison group's mean scores.

Table 20

Mean scores for the last 5-minutes of temperature on the SenseWear PRO 2 armband monitor.

	Experimental Group (<i>n</i> =26)		Comparison Group (<i>n</i> =25)	
	Mean	<i>SD</i>	Mean	<i>SD</i>
Minute 26	31.84	1.01	31.52	0.99
Minute 27	31.89	1.02	31.56	0.99
Minute 28	31.93	1.03	31.59	0.99
Minute 29	31.97	1.03	31.61	0.98
Minute 30	32.01	1.03	31.63	0.97
Total Cases = 51				

Note: An increase in mean score indicates an increase in temperature.

Table 21

Analysis of repeated measures ANOVA data for last 5-minutes of temperature as measured on the SenseWear PRO 2 armband monitor.

Source of Variation	Sum of Squares	<i>df</i>	Mean Square	<i>F</i> Ratio	Significance of <i>F</i>	η^2
Treatment	7.71	1	7.71	1.53	0.22	0.03
Error	246.84	49	5.04			
Time	0.64	1.16(4)	0.55	39.72	<0.01	<0.01
Interaction	0.04	1.16(4)	0.93	2.36	0.13	<0.01
Error	<u>0.79</u>	56.89(196)	0.01			
Total	256.023					

Total Cases = 51

Table 21 presents the *F* ratio for the effect size which was not significant at the <.05 level indicating that there was not a significant difference between the experimental and the comparison groups' temperature measurements on the SenseWear PRO 2 armband monitor within the last 5-minutes of the play therapy session. On the basis of this data, Hypothesis 3(b) was retained. Table 21 also presents η^2 for the effect size was .03 indicating negligible practical significance as measured by the SenseWear PRO 2 armband monitor of the difference between groups. Table 21 also shows the interaction effect was less than .01 indicating negligible practical significance as measured by the SenseWear PRO 2 armband monitor and showed that the experimental and comparison group did not change differently over the last 5-minutes.

Table 22 presents the last five activity measurement means and standard deviations for the experimental and control groups. Table 23 presents the analysis of repeated measures ANOVA data for the last 5-minutes of activity, showing the level of significance of the difference between the experimental and comparison group's mean scores.

Table 22

Mean scores for the last 5-minutes of activity on the SenseWear PRO 2 armband monitor.

	Experimental Group (<i>n</i> =26)		Comparison Group (<i>n</i> =25)	
	Mean	<i>SD</i>	Mean	<i>SD</i>
Minute 26	3.03	1.00	2.78	1.04
Minute 27	3.08	1.03	2.83	0.89
Minute 28	3.15	1.03	2.79	0.97
Minute 29	3.15	0.77	2.83	0.96
Minute 30	3.11	0.81	2.98	0.87
Total Cases = 51				

Note: An increase in mean score indicates an increase in activity.

Table 23

Analysis of repeated measures ANOVA data for last 5-minutes of activity as measured on the SenseWear PRO 2 armband monitor.

Source of Variation	Sum of Squares	<i>df</i>	Mean Square	<i>F</i> Ratio	Significance of <i>F</i>	η^2
Treatment	4.32	1	4.32	1.18	0.28	0.02
Error	180.18	49	3.677			
Time	0.49	3.09(4)	0.16	0.65	0.59	<0.01
Interaction	0.40	3.09(4)	0.13	0.56	0.67	<0.01
Error	<u>37.42</u>	151.50(196)	0.25			
Total	222.813					

Total Cases = 51

Table 23 presents the *F* ratio for the effect size which was not significant at the <.05 level indicating that there was not a significant difference between the experimental and the comparison groups' activity measurements on the SenseWear PRO 2 armband monitor within the last 5-minutes of the play therapy session. On the basis of this data, Hypothesis 3(c) was retained. Table 23 also presents η^2 for the effect size was .02 indicating negligible practical significance as measured by the SenseWear PRO 2 armband monitor of the difference between groups. Table 23 also shows the interaction effect was less than .01 indicating negligible practical significance as measured by the SenseWear PRO 2 armband monitor and showed that the experimental and comparison group did not change differently over the last 5-minutes.

Hypothesis 4. There will be no statistically significant difference between the experimental group and the comparison group overall means on the SenseWear PRO 2 armband monitor for the following:

- (a) galvanic skin response,
- (b) temperature, and
- (c) activity level.

Table 24 presents the analysis of repeated measures ANOVA data for the overall galvanic skin response, showing the level of significance of the difference between the experimental and comparison group's mean scores.

Table 24

Analysis of repeated measures ANOVA data for overall galvanic skin response as measured on the SenseWear PRO 2 armband monitor.

Source of Variation	Sum of Squares	<i>df</i>	Mean Square	<i>F</i> Ratio	Significance of <i>F</i>	η^2
Treatment	20.30	1	20.30	0.57	0.45	0.01
Error	1743.16	49	35.58			
Time	70.56	2.48(29)	28.44	16.11	<0.01	0.03
Interaction	2.99	2.48(29)	1.20	0.68	0.54	<0.01
Error	<u>214.62</u>	121.58(1421)	1.77			
Total	2051.621					

Total Cases = 51

Table 24 presents the *F* ratio for the effect size which was not significant at the <.05 level indicating that there was not a significant difference between the experimental

and the comparison groups' galvanic skin response measurements on the SenseWear PRO 2 armband monitor for the overall play therapy session. On the basis of this data, Hypothesis 4(a) was retained. Table 24 also presents η^2 for the effect size was .01 indicating negligible practical significance as measured by the SenseWear PRO 2 armband monitor of the difference between groups. Table 24 also shows the interaction effect was less than .01 indicating negligible practical significance as measured by the SenseWear PRO 2 armband monitor and showed that the experimental and comparison group did not change differently overall.

Table 25 presents the analysis of repeated measures ANOVA data for the overall temperature, showing the level of significance of the difference between the experimental and comparison group's mean scores.

Table 25

Analysis of repeated measures ANOVA data for overall temperature as measured on the SenseWear PRO 2 armband monitor.

Source of Variation	Sum of Squares	<i>df</i>	Mean Square	<i>F</i> Ratio	Significance of <i>F</i>	η^2
Treatment	32.76	1	32.76	0.98	0.33	0.01
Error	1642.12	49	33.51			
Time	523.96	1.58(29)	332.13	258.22	<0.01	0.23
Interaction	0.37	1.58(29)	0.23	0.18	0.78	<0.01
Error	99.43	77.30(1421)	1.29			
Total	2298.628					

Total Cases = 51

Table 25 presents the F ratio for the effect size which was not significant at the $<.05$ level indicating that there was not a significant difference between the experimental and the comparison groups' temperature measurements on the SenseWear PRO 2 armband monitor for the overall play therapy session. On the basis of this data, Hypothesis 4(b) was retained. Table 25 also presents η^2 for the effect size was $.01$ indicating negligible practical significance as measured by the SenseWear PRO 2 armband monitor of the difference between groups. Table 25 also shows the interaction effect was less than $.01$ indicating negligible practical significance as measured by the SenseWear PRO 2 armband monitor and showed that the experimental and comparison group did not change differently overall.

Table 26 presents the analysis of repeated measures ANOVA data for the overall activity, showing the level of significance of the difference between the experimental and comparison group's mean scores.

Table 26

Analysis of repeated measures ANOVA data for overall activity as measured on the SenseWear PRO 2 armband monitor.

Source of Variation	Sum of Squares	<i>df</i>	Mean Square	<i>F</i> Ratio	Significance of <i>F</i>	η^2
Treatment	20.81	1	20.812	0.81	0.37	0.01
Error	1258.71	49	25.69			
Time	24.34	8.87(29)	2.74	1.84	0.06	0.01
Interaction	7.87	8.87(29)	0.89	0.59	0.80	<0.01
Error	<u>650.08</u>	434.76(1421)	1.50			
Total	1961.82					
Total Cases = 51						

Table 26 presents the *F* ratio for the effect size which was not significant at the <.05 level indicating that there was not a significant difference between the experimental and the comparison groups' activity measurements on the SenseWear PRO 2 armband monitor for the overall play therapy session. On the basis of this data, Hypothesis 4(c) was retained. Table 26 also presents η^2 for the effect size was .01 indicating a negligible practical significance as measured by the SenseWear PRO 2 armband monitor of the difference between groups. Table 26 also shows the interaction effect was less than .01 indicating negligible practical significance as measured by the SenseWear PRO 2 armband monitor and showed that the experimental and comparison group did not change differently overall.

Hypothesis 5. There will be no statistical significant difference between the experimental group and the comparison group on the pre-treatment and post-treatment scores on the heart rate monitor.

Table 27 presents the pre-treatment and post-treatment means and standard deviations for the experimental and control groups. Table 28 presents the analysis of repeated measures ANOVA data for the pre-treatment and post-treatment heart rate, showing the level of significance of the difference between the experimental and comparison group's mean scores.

Table 27

Mean total scores on the heart rate monitor.

	Experimental Group (n=26)		Comparison Group (n=25)	
	Pre-test	Post-test	Pre-test	Post-test
Mean	98.85	106.35	89.64	21.95
SD	22.68	20.70	97.24	22.17
Total Cases = 51				

Note: An increase in mean score indicates an increase in heart rate.

Table 28

Analysis of repeated measures ANOVA data on the heart rate monitor.

Source of Variation	Sum of Squares	<i>df</i>	Mean Square	<i>F</i> Ratio	Significance of <i>F</i>	η^2
Treatment	2136.97	1	2136.97	3.64	0.06	0.04
Error	28757.34	49	586.88			
Time	1453.01	1	1453.01	3.91	0.05	0.03
Interaction	0.06	1	0.06	<0.01	0.99	<0.01
Error	<u>18188.25</u>	49	371.19			
Total	50535.632					

Total Cases = 51

Table 28 presents the *F* ratio for the effect size which was not significant at the <.05 level indicating that there was not a significant difference between the experimental and the comparison groups' measurements on the heart rate monitor of the play therapy session. On the basis of this data, Hypothesis 5 was retained. Table 28 also presents η^2 for the effect size was .04 indicating negligible practical significance as measured by the SenseWear PRO 2 armband monitor of the difference between groups. Table 28 also shows the interaction effect was less than .01 indicating negligible practical significance as measured by the SenseWear PRO 2 armband monitor and showed that the experimental and comparison group did not change differently on the pre-treatment and post-treatment heart rates.

Post Hoc Analysis

With the use of the two factors repeated measures ANOVA with mixed factors for the data from this study, the Mauchly's test of sphericity was violated. With this violation, then the sphericity of each analysis was adjusted. The Huynh-Feldt test corrected the errors in the analysis of covariance. However, then the outcomes of each analysis lost significance and minimized any possible differences between groups. The effect size calculated with η^2 showed negligible practical significance for the differences accounted for by the treatment (Thompson, 2002).

I chose to run post-hoc analyses based on the results of the two factor repeated measures ANOVA with mixed factors on the overall galvanic skin response, temperature, activity, and pre-treatment and post-treatment heart rate measurements. The following four graphs for the overall measurements taken in this study suggest the possibility of statistically significant results if sphericity had not been violated.

Figure 1

Estimated marginal means of GSR.

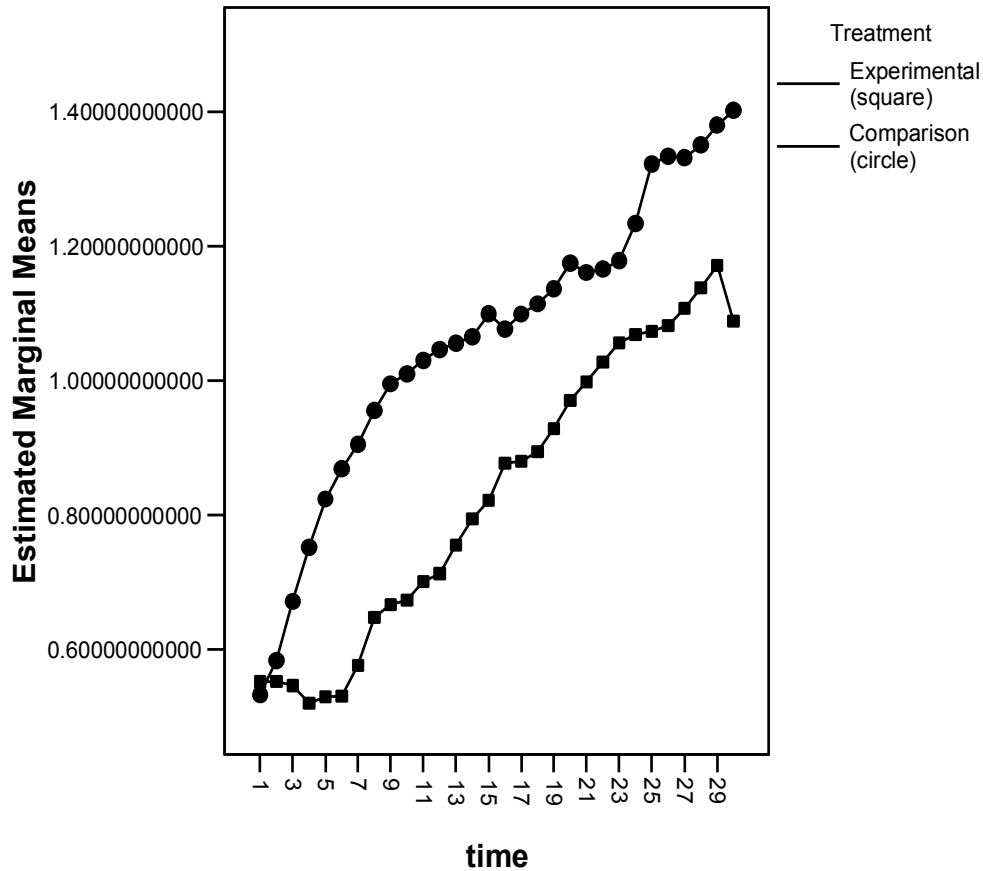


Figure 1 presents the means for each minute during the 30-minute play session for the galvanic skin response measurement for the experimental group and the comparison group. The graph indicates similarities in the overall increase in biobehavioral measurements throughout the session. It is important to note that the measurements for the 1-minute, 5-minute, 29-minute, and 30-minute marks seemed to show a difference between the group means. Although the comparison group initially had higher galvanic skin response measurements, at the 5-minute mark the experimental group mean increased while the comparison group mean decreased. A difference was also noted at the 29 and 30-minute marks. The experimental group

means continued to rise each minute while the comparison group means dropped with 1-minute left in the session.

Figure 2

Estimated marginal means of temperature.

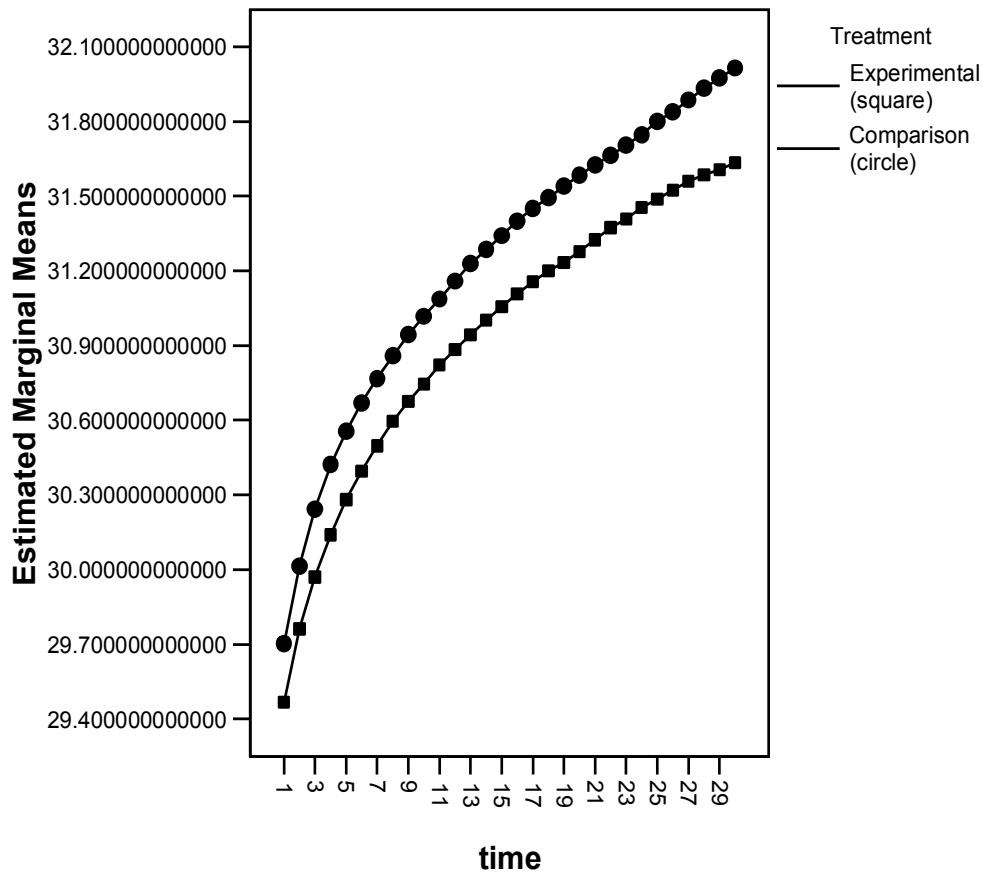


Figure 2 presents the means for each minute during the 30-minute play session for the temperature measurement for the experimental group and the comparison group. The graph indicates a general increase in temperature for both groups. However, the curve suggests a greater difference between the 1-minute mark than the 30-minute mark.

Figure 3

Estimated marginal means of activity.

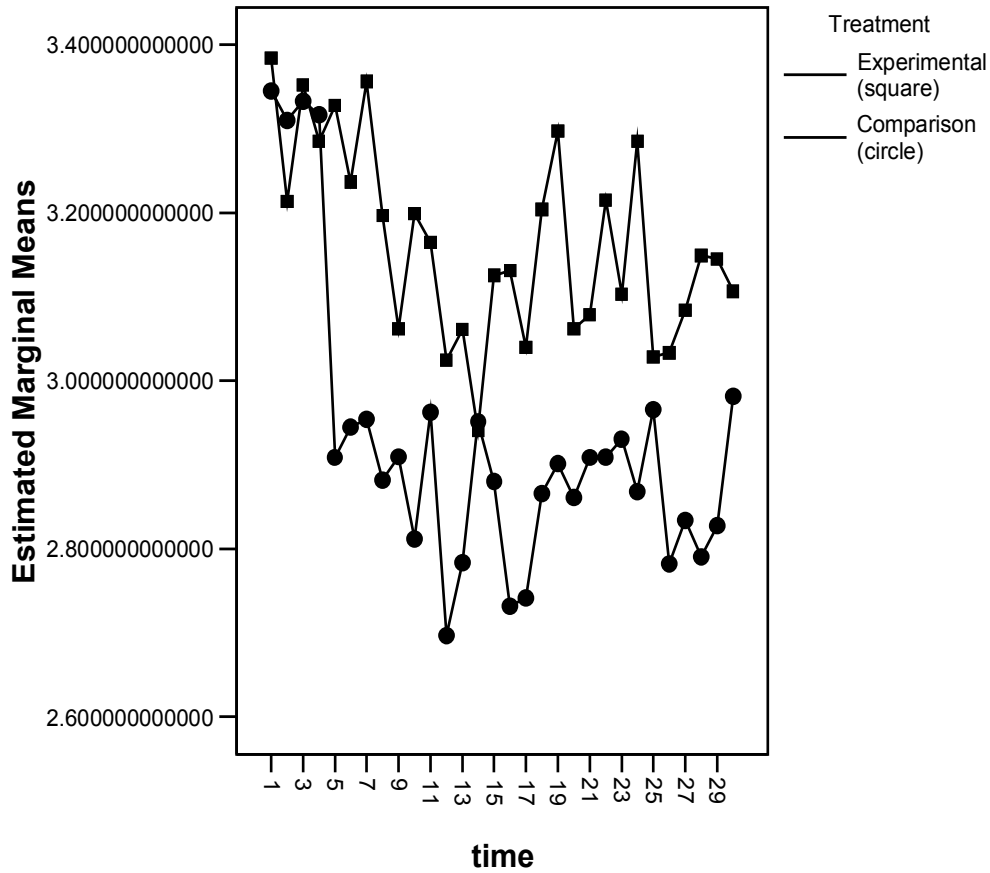


Figure 3 presents the means for each minute during the 30-minute play session for the activity measurement for the experimental group and the comparison group. The activity level measurements for both groups seem to indicate a similar pattern even though the mean activity levels of the comparison group is lower than the experimental group. It is important to note that the measurements for the 1-minute, 5-minute, 29-minute, and 30-minute marks seemed to show a difference between the group means.

Figure 4

Estimated marginal means of pre-treatment and post-treatment heart rate.

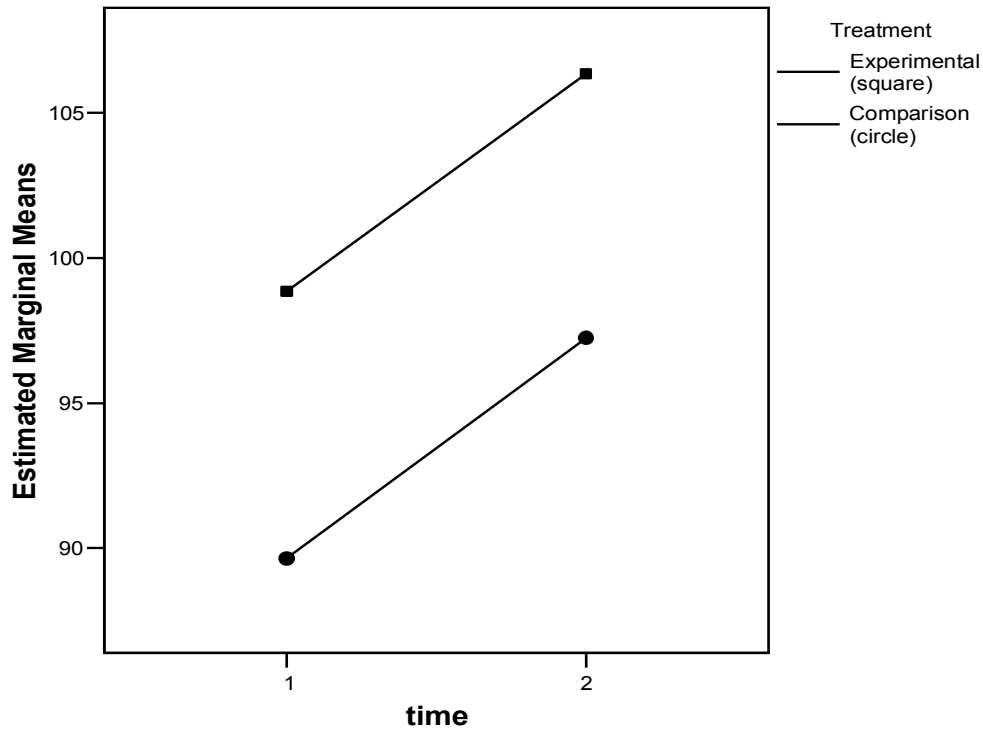


Figure 4 presents the means for the pre-treatment and post-treatment heart rate measurement for the experimental group and the comparison group. The means for the post-treatment heart rate measurements for both groups increased as compared to the means for the pre-treatment heart rate measurement. Overall, the graph shows that the means for the heart rate measurements for the experimental group were higher than the comparison group.

In addition, further exploration of the data was necessary in order to determine if practical significance existed for the data. Independent t-tests were run on the data that seemed to allude to a difference between treatments. The independent t-tests showed that equal variances could be assumed for each t-test that was run. I then calculated the effect size of each independent t-test with Cohen's *d* (Thompson, 2002). According to Cohen, he suggested that the standardized difference of .2 is small, .5 is medium, and .8 is large (Thompson, 2002). Seven of the independent t-tests showed small statistical differences between the groups.

Table 29 presents the 1-minute galvanic skin response means and standard deviations for the experimental and control groups and the overall mean and standard deviation. Table 30 presents the independent t-test for the 1-minute galvanic skin response, showing the level of significance of the difference between the experimental and comparison group's mean scores.

Table 29

Mean and standard deviation total scores and 1-minute on the galvanic skin response.

	Mean	SD
Experimental Group(<i>n</i> =26)	0.53	0.70
Comparison Group (<i>n</i> =25)	0.55	1.15
Overall	0.54	0.94
Total Cases = 51		

Table 30

Independent t-tests for the 1-minute galvanic skin response.

<i>F</i> Ratio	Significance of <i>F</i>	<i>df</i>	Significance (2-tailed)	Cohen's <i>d</i>
0.65	0.43	49	0.94	0.02

Equal variances assumed

Total Cases = 51

Table 30 presents negligible practical significance, the calculations for the 1-minute galvanic skin response did not show a variation between groups.

Table 31 presents the 1-minute activity level means and standard deviations for the experimental and control groups and the overall mean and standard deviation.

Table 32 presents the independent t-test for the 1-minute activity level, showing the level of significance of the difference between the experimental and comparison group's mean scores.

Table 31

Mean and standard deviation total scores and 1-minute activity level.

	Mean	<i>SD</i>
Experimental Group (<i>n</i> =26)	3.38	1.49
Comparison Group (<i>n</i> =25)	3.34	1.07
Overall	3.36	1.29

Total Cases = 51

Table 32

Independent t-tests for the 1-minute activity level.

<i>F</i> Ratio	Significance of <i>F</i>	<i>df</i>	Significance (2-tailed)	Cohen's <i>d</i>
1.27	0.27	49	0.92	0.03

Equal variances assumed

Total Cases = 51

Table 32 presents negligible practical significance, the calculations for the 1-minute activity level did not show a variation between groups.

Table 33 presents the 30-minute mark for the activity level means and standard deviations for the experimental and control groups and the overall mean and standard deviation. Table 34 presents the independent t-test for the 30-minute mark for activity level, showing the level of significance of the difference between the experimental and comparison group's mean scores.

Table 33

Mean and standard deviation total scores and 30-minute activity level.

	Mean	<i>SD</i>
Experimental Group(<i>n</i> =26)	3.11	0.81
Comparison Group (<i>n</i> =25)	2.98	0.87
Overall	3.05	0.83

Total Cases = 51

Table 34

Independent t-tests for the 30-minute activity level.

<i>F</i> Ratio	Significance of <i>F</i>	<i>df</i>	Significance (2-tailed)	Cohen's <i>d</i>
0.39	0.54	49	0.60	0.15

Equal variances assumed

Total Cases = 51

Table 34 presents minimal practical significance, the calculations for the 30-minute mark for the activity level did not show a large variation between groups.

Table 35 presents the 29-minute mark for the galvanic skin response means and standard deviations for the experimental and control groups and the overall mean and standard deviation. Table 36 presents the independent t-test for the 29-minute mark for the galvanic skin response, showing the level of significance of the difference between the experimental and comparison group's mean scores.

Table 35

Mean and standard deviation total scores and 29-minute galvanic skin response.

	Mean	<i>SD</i>
Experimental Group (<i>n</i> =26)	1.38	1.15
Comparison Group (<i>n</i> =25)	1.17	1.48
Overall	2.99	0.87

Total Cases = 51

Table 36

Independent t-tests for the 29-minute galvanic skin response.

<i>F</i> Ratio	Significance of <i>F</i>	<i>df</i>	Significance (2-tailed)	Cohen's <i>d</i>
0.74	0.39	49	0.58	0.16

Equal variances assumed

Total Cases = 51

Table 36 presents minimal practical significance, the calculations for the 29-minute mark for the galvanic skin response did not show a large variation between groups.

Table 37 presents the 1-minute mark for the temperature means and standard deviations for the experimental and control groups and the overall mean and standard deviation. Table 38 presents the independent t-test for the 1-minute mark for the temperature, showing the level of significance of the difference between the experimental and comparison group's mean scores.

Table 37

Mean and standard deviation total scores and 1-minute temperature.

	Mean	SD
Experimental Group(<i>n</i> =26)	29.70	1.31
Comparison Group (<i>n</i> =25)	29.47	1.33
Overall	29.59	1.31
Total Cases = 51		

Table 38

Independent t-tests for the 1-minute temperature.

<i>F</i> Ratio	Significance of <i>F</i>	<i>df</i>	Significance (2-tailed)	Cohen's <i>d</i>
0.01	0.94	49	0.53	0.18
Equal variances assumed				
Total Cases = 51				

Table 38 presents minimal practical significance, the calculations for the 1-minute mark for temperature did not show a large variation between groups.

Table 39 presents the 5-minute mark for the galvanic skin response means and standard deviations for the experimental and control groups and the overall mean and standard deviation. Table 40 presents the independent t-test for the 5-minute mark for the galvanic skin response, showing the level of significance of the difference between the experimental and comparison group's mean scores.

Table 39

Mean and standard deviation total scores and 5-minute galvanic skin response.

	Mean	SD
Experimental Group(<i>n</i> =26)	0.82	1.20
Comparison Group (<i>n</i> =25)	0.53	0.80
Overall	0.68	1.03
Total Cases = 51		

Table 40

Independent t-tests for the 5-minute galvanic skin response.

<i>F</i> Ratio	Significance of <i>F</i>	<i>df</i>	Significance (2-tailed)	Cohen's <i>d</i>
1.37	0.25	49	0.31	0.29
Equal variances assumed				
Total Cases = 51				

Table 40 presents small practical significance, the calculations for the 5-minute mark for the galvanic skin response showed a small variation between groups.

Table 41 presents the 30-minute mark for the galvanic skin response means and standard deviations for the experimental and control groups and the overall mean and standard deviation. Table 42 presents the independent t-test for the 30-minute mark for the galvanic skin response, showing the level of significance of the difference between the experimental and comparison group's mean scores.

Table 41

Mean and standard deviation total scores and 30-minute galvanic skin response.

	Mean	SD
Experimental Group(<i>n</i> =26)	1.40	1.16
Comparison Group (<i>n</i> =25)	1.09	1.39
Overall	1.25	1.27
Total Cases = 51		

Table 42

Independent t-tests for the 30-minute galvanic skin response.

<i>F</i> Ratio	Significance of <i>F</i>	<i>df</i>	Significance (2-tailed)	Cohen's <i>d</i>
0.09	0.77	49	0.39	0.25
Equal variances assumed				
Total Cases = 51				

Table 42 presents small practical significance, the calculations for the 30-minute mark for the galvanic skin response showed a small variation between groups.

Table 43 presents the 5-minute mark for the activity level means and standard deviations for the experimental and control groups and the overall mean and standard deviation. Table 44 presents the independent t-test for the 5-minute mark for the activity level, showing the level of significance of the difference between the experimental and comparison group's mean scores.

Table 43

Mean and standard deviation total scores and 5-minute activity level.

	Mean	SD
Experimental Group(<i>n</i> =26)	3.33	1.15
Comparison Group (<i>n</i> =25)	2.91	1.29
Overall	3.12	1.23
Total Cases = 51		

Table 44

Independent t-tests for the 5-minute activity level.

<i>F</i> Ratio	Significance of <i>F</i>	<i>df</i>	Significance (2-tailed)	Cohen's <i>d</i>
1.16	0.29	49	0.23	0.34
Equal variances assumed				
Total Cases = 51				

Table 44 presents small practical significance, the calculations for the 5-minute mark for the activity level showed a small variation between groups.

Table 45 presents the 29-minute mark for the activity level means and standard deviations for the experimental and control groups and the overall mean and standard deviation. Table 46 presents the independent t-test for the 29-minute mark for the activity level, showing the level of significance of the difference between the experimental and comparison group's mean scores.

Table 45

Mean and standard deviation total scores and 29-minute activity level.

	Mean	SD
Experimental Group(<i>n</i> =26)	3.15	0.77
Comparison Group (<i>n</i> =25)	2.83	0.96
Overall	2.99	0.87
Total Cases = 51		

Table 46

Independent t-tests for the 29-minute activity level.

<i>F</i> Ratio	Significance of <i>F</i>	<i>df</i>	Significance (2-tailed)	Cohen's <i>d</i>
0.85	0.36	49	0.20	0.36
Equal variances assumed				
Total Cases = 51				

Table 46 presents small practical significance, the calculations for the 29-minute mark for the activity level showed a small variation between groups.

Table 47 presents the 30-minute mark for the temperature means and standard deviations for the experimental and control groups and the overall mean and standard deviation. Table 48 presents the independent t-test for the 30-minute mark for the temperature, showing the level of significance of the difference between the experimental and comparison group's mean scores.

Table 47

Mean and standard deviation total scores and 30-minute temperature.

	Mean	SD
Experimental Group(<i>n</i> =26)	32.01	1.03
Comparison Group (<i>n</i> =25)	31.63	0.97
Overall	31.83	1.01
Total Cases = 51		

Table 48

Independent t-tests for the 30-minute temperature.

<i>F</i> Ratio	Significance of <i>F</i>	<i>df</i>	Significance (2-tailed)	Cohen's <i>d</i>
0.07	0.80	49	0.18	0.38
Equal variances assumed				
Total Cases = 51				

Table 48 presents small practical significance, the calculations for the 30-minute mark for the temperature showed a small variation between groups.

Table 49 presents the pre-treatment heart rate means and standard deviations for the experimental and control groups and the overall mean and standard deviation. Table 50 presents the independent t-test for the pre-treatment heart rate, showing the level of significance of the difference between the experimental and comparison group's mean scores.

Table 49

Mean and standard deviation total scores and pre-treatment heart rate.

	Mean	SD
Experimental Group(<i>n</i> =26)	98.85	22.68
Comparison Group (<i>n</i> =25)	89.64	21.95
Overall	94.33	22.59
Total Cases = 51		

Table 50

Independent t-tests for the pre-treatment heart rate.

<i>F</i> Ratio	Significance of <i>F</i>	<i>df</i>	Significance (2-tailed)	Cohen's <i>d</i>
0.14	0.72	49	0.15	0.41
Equal variances assumed				
Total Cases = 51				

Table 50 presents small practical significance, the calculations for the pre-treatment heart rate showed a small variation between groups.

Table 51 presents the post-treatment heart rate means and standard deviations for the experimental and control groups and the overall mean and standard deviation. Table 52 presents the independent t-test for the post-treatment heart rate, showing the level of significance of the difference between the experimental and comparison group's mean scores.

Table 51

Mean and standard deviation total scores and post-treatment heart rate.

	Mean	SD
Experimental Group(<i>n</i> =26)	106.35	20.70
Comparison Group (<i>n</i> =25)	97.24	22.17
Overall	101.88	21.71
Total Cases = 51		

Table 52

Independent t-tests for the post-treatment heart rate.

<i>F</i> Ratio	Significance of <i>F</i>	<i>df</i>	Significance (2-tailed)	Cohen's <i>d</i>
0.25	0.62	49	0.14	0.42
Equal variances assumed				
Total Cases = 51				

Table 52 presents small practical significance, the calculations for the post-treatment heart rate showed a small variation between groups.

Table 53 presents the correlations, showing on average within each child's scores if a relationship exists between the experimental and comparison group's galvanic skin response, temperature, and activity scores.

Table 53

Average within correlation for galvanic skin response, temperature, and activity.

	Experimental Group (n = 26)	Comparison Group (n = 25)
Activity x Temperature	$r = .41$	$r = .42$
Activity x GSR	$r = .34$	$r = .42$
Temperature x GSR	$r = .91$	$r = .93$
Total Cases= 51		

Note: The score indicates the average r to z transformation scores.

Table 53 presents the correlations between activity, temperature, and galvanic skin response. As shown, the r score indicates a strong correlation between temperature and galvanic skin response, but can not indicate a causal relationship. The r scores indicate small correlations between activity and galvanic skin response and between activity and temperature, but can not indicate a causal relationship.

Observations

Qualitative observations were also recorded to facilitate a better understanding of the data. Through videotaping, I specifically reviewed the following behaviors within each child's play therapy session: children's approach to the play therapy room, children's quantity of play, and children's type of play. Additionally, the treatment group was further observed for the amount of interactions with the trained therapy animal.

The following four categories were observed and describe the children's approach to the play therapy room: self-directed, the child went directly to the shelves

and chose toys without hesitation; cautious initially, the child was initially hesitant when entering the room, but then chose toys he or she wanted to play with; cautious throughout, the child was hesitant to play with toys throughout the entire 30-minute session; and extreme caution, the child did not play with any toys until after the 5-minute warning or did not play with any toys the entire session. Table 54 shows the distribution of children’s approaches to the play therapy room.

Table 54

Children’s approach to the play therapy room.

	Experimental Group (<i>n</i> = 26)	Comparison Group (<i>n</i> = 25)
Self-directed	13	11
Cautious initially	8	5
Cautious throughout	4	7
Extreme caution	1	2
Total Cases= 51		

Table 54 presents the number of children in the four categories and how each approached the play therapy room. In total, almost half of the children in the experimental and comparison groups were self-directed in their approach to the playroom. Of the 26 children in the experimental group, half of the children were self-directed in their approach to the playroom. One-fourth of the children in the experimental and comparison groups were cautious initially when entering the play therapy room. Less than a quarter of the children in both groups were cautious

throughout the entire play therapy session. Only 6% of the children exercised extreme caution throughout the entire session and chose not to play with the toys until after the 5-minute warning or chose not to play at all.

In the play therapy room, children have the ability to decide whether or not to play with any or all of the toys. The following three categories represent the observed children’s play: all play, the child played with toys or the trained therapy dog the entire time while in the play therapy room; little play, the child played twenty minutes or less in the play therapy room; and no play, the child did not play with any toys while in the play therapy room. In this study, children in the experimental group had the choice to play with the toys or interact with the trained therapy dog throughout the play therapy session. Table 55 shows the distribution of children’s approaches to the play therapy room.

Table 55

Children’s quantity of play throughout the play therapy session.

	Experimental Group (<i>n</i> = 26)	Comparison Group (<i>n</i> = 25)
All play	22	20
Little play	2	4
No play	2	1
Total Cases= 51		

Table 55 presents the number of children in the three categories for the quantity of play in the play therapy room. Over 80% of the children in the experimental and

comparison groups played with the toys or with Rusty the entire session. From the experimental group, only 2 children interacted with the trained therapy dog throughout the entire play therapy session and did not play with a single toy in the room. Of the 51 children in this study, 6 children played less than twenty minutes of the entire 30-minute session. Only 6% of the children did not play or touch any toys in the play therapy room.

The type of play that most of the children engaged in throughout the play therapy session may be an indicator of the increased biobehavioral measurements on the monitor. Children in the experimental and the comparison groups played with similar toys in the play therapy room. Many of the children explored the room and then interacted with the guns, knives, bow and arrow, cash register, hammer and nails, and crafts. Most of the time, these toys are classified as toys that allow the child to feel in control, powerful, and gain a sense of mastery. Perry (1993) indicated that children have a need to feel in control. Children without this sense of control may feel more anxious than other children. Therefore, it is possible that children who engaged with these toys were searching for a way to feel more in control in these new surroundings.

To closely examine the experimental group's interactions with the trained therapy dog, the time of the interactions and the quantity of the interactions were observed. Interactions referred to child-initiated petting, talking, and care-taking of the trained therapy dog. The children's interactions with the trained therapy dog were categorized into the following three divisions: pre-treatment, interactions between the child and trained therapy dog before the play therapy session started; during the session, interactions between the child and the trained therapy dog within the 30-minutes of the play therapy session, and post-treatment, interactions between the child and the trained

therapy dog after the play therapy session ended. The quantity of interactions with the trained therapy dog were further divided into three areas: children who played with the trained therapy dog in the pre-treatment, during the session, and in the post-treatment; children who played with the trained therapy dog in the pre-treatment and post-treatment; and children who played with the trained therapy dog in the post-treatment only.

Table 56

Children's time and quantity of interactions with the trained therapy dog.

	Experimental Group (n = 26)
Pre-during-post interactions	9
Pre-post interactions	14
Post only interactions	3
Total Cases=	51

Table 56 presents the time and quantity of interactions the children in the experimental group had with the trained therapy dog. Over 33% of the children in the experimental group chose to interact with the trained therapy dog before the session started, during the session, and after the session ended. Specifically, of those 9 children, only 2 children interacted entirely with the trained therapy dog and did not play with any of the toys in the play therapy room. Over half of the children in the experimental group interacted with the trained therapy dog before and after the play therapy session, but did not interact with him during the session. Only 3 children chose

to ignore the trained therapy dog in the pre-treatment and during the play therapy session, but interacted with the trained therapy dog after the play therapy session ended. Furthermore, one of the three children who chose not to interact with the trained therapy dog also chose not to play with any of the toys in the play therapy room until the last three minutes.

Discussion

This study served as an exploration of children's initial anxiety when entering therapy for the first time. The results from this study provided information regarding the differences in children's biobehavioral measurements during their play therapy session with or without the presence of a trained therapy dog. Although not statistically significant at the .05 level, the results suggested a pattern of higher biobehavioral measurements for the children in the experimental group who received one child-centered play therapy (CCPT) session with the presence of a trained therapy dog than the children in the comparison group who received one CCPT session without the presence of a trained therapy dog. All of the 5 hypotheses in this study were retained based on statistical results. An interpretation of the results is presented below.

Initial Anxiety in Play Therapy

Overall, children's biobehavioral measurements on the *SenseWear Pro 2* armband were higher than anticipated. Tables 1 to 5 show no statistically significant difference between groups among gender, age, or scores on the BASC-PRS. Therefore, one consideration for the higher measurements on the armband for both groups may be that for each child this was a new experience. According to Perry and Pollard (1998), children's brains judge all novel, unfamiliar environmental cues as

threatening until these cues have been deemed safe. Thus, all new stimuli induce an increase in children's arousal, focus their attention, and cause an alarm response. As the novel or unfamiliar stimuli is taken in, the cues are compared with previous stored memories and the stress-response systems are activated. Once the cues are sorted into a safe or threatening category, the brain then creates patterns that match subsequent stimuli. Therefore, it may be possible that children's anticipatory anxiety may have lessened after subsequent sessions. Landreth (2002) also reported that play does not occur in novel or frightening situations. Thus, it is possible that this may have hindered the amount of play children engaged in while in the play therapy room. One criterion for the study was that the children in this study had never had play therapy services before which also meant that they had not been introduced to a play therapy room before. This may have caused an increase in their anticipatory anxiety not only walking to an unknown room, but also entering a strange room with a stranger.

Another consideration to note is that I might have been perceived as a stranger to the child. Although I introduced herself and met each child prior to the play therapy session, the interaction between I and each child was brief. Therefore, each child and I did not have an established relationship upon entering the play therapy room. Although possible, it may be difficult to establish a therapeutic relationship during the initial play therapy session with a child. Oaklander (1988) suggested that most children will develop a therapeutic relationship with the play therapist within 1 to 4-sessions. CCPT is based on the relationship between the child and the play therapist. The play therapist becomes a safe, predictable, consistent part of the play therapy room (Axline, 1947; Landreth, 2002). Perry (1993) emphasizes the need for children to feel nurtured and

supported in a predictable, special relationship with an adult. He suggests that therapy will not have a positive impact if the child does not perceive the previous conditions. A child's brain controls physiological and emotional responses to possible threats. Therefore, if the child does not feel safe, then the child's brain could increase his or her anxiety responses, physiological responses, and arousal if a safe relationship is not experienced. Perry (1993) also suggests that a child is more likely to succeed in therapy if he or she feels less anxious which is possible only through developing a predictable, therapeutic relationship. The primary change agent in CCPT is the relationship between the child and the play therapist (Axline, 1947). In addition to the relationship, one of the main purposes of play therapy is to allow children to recreate their experiences through play as their natural medium of communication (Landreth, 2002). Therefore as shown in Tables 6 to 11, it is possible to conclude that without an established therapeutic relationship, children's biobehavioral measurements were higher than anticipated within the first 5-minutes of the session.

A further explanation may be that today children are more familiar with structured play than non-structured play. In today's society, more children are engaged in structured play such as little league games, art classes, and piano lessons. More than ever, many of the children are captivated by television programs and computer games before and after school instead of non-structured play outside with other children, being more physical, and using their imagination and creativity. Perry (2004) reported that children are watching an enormous 28 hours of television a week on average. At the beginning of each play therapy session, I introduced the room saying, "This is our special playroom and in here you can play with the toys in a lot of the ways you would

like to” (Guerney, 1983; Landreth, 2002). Although most of the toys should have been recognizable, it may be possible that some of the children did not have previous experiences playing with dress up clothes, using a hammer and nails, or painting without a prescribed element of structure and many of the other toys listed in the previous chapter (Landreth, 2002). As shown in Tables 12 to 17, it is possible that the unfamiliar freedom and self-directedness increased the children’s anxiety level. These children hesitantly entered the play therapy room and tried to obtain reassurance or direction from the play therapist. As stated before, structured settings may provide an element of familiarity, but also a set of rules provided by the adult. Hence, a structured environment may help minimize children’s initial anxiety, because then children do not have to self-direct. Children need to experience that the play therapist will not criticize or judge him or her. The play therapist does not interrupt this process, because it is more important for the child to experience the freedom to choose for him or herself in a non-structured environment (Guerney, 1983). Since the play therapy session is child-directed, it is reasonable to assume that the non-structured environment of the play therapy room increased children’s biobehavioral measurements not only in the experimental group, but also the comparison group.

Similarly, it is possible that the therapeutic responses that I used throughout the entire play therapy session may have induced the biobehavioral responses within the children (Ray, in press). Play therapists are often regarded initially by children as teachers or authority figures. Therefore to further complicate matters to the child, in the play therapy room the play therapists allow the child the freedom to explore the room and direct his or her own play. This could be confusing to a child during the first play

therapy session, because the play therapist does not direct or initiate any play as a teacher or parent may. To a child who may be anxious upon entering the play therapy room, the permissive environment may heighten their anxiety. However, as mentioned before, after developing a therapeutic alliance with the play therapist, the child may then experience the play therapy room as a safe, consistent environment where the play therapist is predictable in his or her responses as well and then decrease a child's anxiety levels.

Although the results shown in Tables 24 to 26 illustrate no statistically significant differences between the experimental and comparison group, the comparison group showed lower measurements on the galvanic skin response, temperature, and activity level throughout the majority of the play therapy session. The children in both groups looked similar in observations even though there was a difference in their biobehavioral measurements. Therefore, it is important that the children wore the armband monitor in order to measure these differences. Perry (1993) reported that children have the ability to mask their distress in new situations and look similar even though internally they may be responding differently.

Anxiety When Combining Animal-Assisted Therapy and Play Therapy

Another consideration is that the children in the experimental group may have felt overwhelmed with the choice to not only “play with the toys in a lot of the ways he or she would like to” (Landreth, 2002), but also the ability to interact with the trained therapy dog. Many of the children seemed overwhelmed with the choice to decide whether or not to play with the toys or the trained therapy dog. As shown in Table 56, over half of the children did not interact with the trained therapy dog during the play

therapy session. However, those children chose to play with the toys in the playroom during the play therapy session, but did interact with the trained therapy dog before and after the session. As previously mentioned, only one-third of the children in the experimental group chose to interact with the trained therapy dog before, during, and after the play therapy session. Of that one-third, two of those children interacted completely with the trained therapy dog and did not play with the toys in the play therapy room. I followed the standardized protocol when introducing the trained therapy dog and the play therapy room. However, children in the experimental group chose to interact with the trained therapy dog and/or the play therapy toys. This suggests that even though the interactions with the trained therapy dog were self-directed, children may have been experiencing an internal struggle as to the choice they made. This may also explain why the SenseWear PRO 2 armband monitor showed higher biobehavioral measurements for children in the experimental group than the comparison group.

Knowing that children's anxiety may increase when introduced to new stimuli, it is reasonable to assume that when introduced to familiar stimuli their anxiety would decrease (Perry & Pollard, 1998). With 1-minute left in the session, I gave a 5-minute and a 1-minute warning to each child. At the 1-minute warning, many of the children picked up their toys and placed them back on the shelves or finished their play sequence. After the 1-minute was over, I told each child that "our time is up in the special playroom for today." Then, I walked the children to the waiting room where their parents were waiting for them or to their classroom where they reunited with teacher and classmates. Therefore, it is possible to conclude that the reason the biobehavioral measurements for the comparison group dropped during the last minute of the session

was due to the fact that they knew they would be going back to their classroom or the waiting room where familiar people were waiting. However, the experimental group did not show this same trend. Although I gave the same 5-minute and 1-minute warnings as well as I ended the session in the same way for both groups, having the trained therapy dog in the play therapy room may have compounded the ending of the session. A further explanation specifically addresses the differences between the experimental and comparison groups for the 30-minute mark for the galvanic skin response. As shown in Table 42, small practical significance showed a small variation between groups. For instance, the experimental group may not have felt a sense of relief when told that there was 1-minute left in the play therapy session and then the play session was over. Although they may have been finished playing with the toys, the trained therapy dog was still in the play therapy room. Having the trained therapy dog may have induced more anxiety within the children, because they may have wanted to interact more with the dog.

Confounding Variables Attributed to Increased Anxiety

One variable that may have confounded the results of this study may be attributed to the monitor itself. I met with each child from the experimental and comparison groups prior to the play therapy session. During this short interaction, I introduced herself and the armband monitor. She allowed each child to play with the monitor and ask questions about it in order to reduce the child's anxiety or nervousness associated with wearing the armband during the play therapy session. Perry (1993) suggested that it is crucial to present clear and factual information and not withhold knowledge from children. He reported that children are highly sensitive to nonverbal

messages and therefore will create a more terrorizing experience if not given appropriate information surrounding an event. With this in mind, I tried to eliminate the armband as a source of additional anxiety, but it is possible that the children did not have enough time to interact with the armband prior to the session. It may also be possible that with the initial meeting prior to the play therapy session, some children may not have felt comfortable to ask questions about the armband and then began to magnify the possibilities of the armband's capacity. Thus, creating more anxiety in some children rather than decreasing their anxiety surrounding the function of the armband monitor.

Summary

The combination of CCPT and animal-assisted therapy was shown overall to have little practical significance in decreasing children's initial biobehavioral responses as measured by the *SenseWear Pro 2* armband monitor. The combination of CCPT and animal-assisted therapy was shown to have little practical significance in decreasing children's first 5-minute biobehavioral measurements, middle 5-minute biobehavioral measurements, last 5-minute biobehavioral measurements as measured by the *SenseWear Pro 2* armband monitor. The combination of CCPT and animal-assisted therapy was shown to have little practical significance in decreasing children's pre-treatment and post-treatment heart rate. The results of the two factor repeated measures analysis of variance with mixed factors were not statistically significant.

Of the five hypotheses tested in this study, all were retained based on statistical significance at the .05 level. The results did not show large statistically significant differences between the experimental and comparison groups. The possible interaction

between the galvanic skin response, temperature, heart rate, and activity level may have contributed to the lack of statistical significance as calculated by the repeated measures analysis of variance.

In conclusion, although this study did not produce statistically significant results in helping to reduce children's biobehavioral measurements, more research is necessary before disregarding the combination of CCPT and animal-assisted therapy. During the initial CCPT, the presence of the trained therapy dog did not lower children's biobehavioral measurements. However, this study produced additional questions and recommendations for future research. It is also necessary to address the limitations of this study in order to prevent similar limitations in future studies.

Limitations

I utilized a convenience sample rather than a random sample of the population. Although I actively recruited participants from the selected clinic and selected elementary school, if the parents of the children eligible for this study did not respond to the letter or the telephone call from I, then the children were eliminated from the participant list. Of the children who were removed from the participant list, 10 did not respond to the initial letter explaining the study or the reminder telephone call, 6 reserved their right to deny participating in this study, 4 had moved and did not have a forwarding address, and 5 participated in play therapy previously making them ineligible for the current study. With this in mind, it may have hindered the generalizability of the conclusions of this study. The animal screening was necessary to eliminate any children who may have been afraid of dogs, allergic to dogs, or have harmed an animal before. Knowing this, the animal screening may have caused unavoidable exclusions among

certain behaviors. Therefore, it is possible that the experimental population may have been biased. I had to eliminate 2 children during the intake process due to both children being afraid of dogs.

I was the only play therapist who conducted sessions in order to eliminate the influence or possible skill differences between play therapists. I conducted not only the play therapy sessions without the trained therapy dog, but also the sessions with the trained therapy dog. Thus, experimenter bias may have influenced the results of this study. I used a trained therapy dog that was not her own. It is possible that the trained therapy dog may not have felt as comfortable in the playroom without his owner. Therefore, it is possible that the trained therapy dog may have interacted differently with the children if he were in session with his owner. However, I attempted to control for this variable by establishing a relationship and developing a routine in order to enhance the therapy dog's comfort level.

The SenseWear PRO 2 armband monitor may have increased each child's anxiety level prior to entering the play therapy room. The monitor may have been too intrusive even though I introduced the monitor to each child prior to the play therapy session. A monitor that may have provided more sensitive measurements of children's biobehavioral responses seemed to be more intrusive than the monitor used in this study. In researching possible monitors for the use in this study, I found that other monitors used finger sensors and chest straps that could potentially be more invasive and increase children's anxiety levels more than the armband used in this study. Children made several comments when introduced to the monitor for the first time such as the following: "What does it do?"; "Does it know my feelings?"; "Does it know what

my body's doing?", "Is that the motor?" [pointing at the battery cover]; "What happens if I move my arm like this?" [wildly throwing arms around his head], "It won't tickle on my other arm, I know"; "Can I push that button?"; "How long do I have to wear this?"; and "Do I have to wear this every time?" Many of these responses were repeated by several children. Although allowing each child to examine the armband in advance, several children were still uncomfortable with the armband. For instance, a few children walked to the playroom with their arm held stiffly to their side or lifting their shirt sleeve occasionally to look at the armband.

In one session, it may be difficult to fully establish a therapeutic relationship with a child. Thus, the child's anxiety may increase rather than decrease based on attending a play therapy session with an unfamiliar person. The introduction of a trained therapy dog in the play therapy room may have increased the risk of zoonotic transmissions. With the precautions previously mentioned, the risk was minimal. Thus, teachers, parents, children associated with this study did not report any such transmissions.

Implications and Recommendations for Future Research

Based on the results of this study, the following recommendations and suggestions are offered in order to enhance the field of play therapy, the field of animal-assisted therapy, mental health services in general for children, and implications for future research. First of all, this study indicates the need to further investigate children's anticipatory anxiety when beginning mental health services. Initially, these children's measurements on the galvanic skin response were similar to the children in play therapy with the trained therapy dog. However, after the first minute, their galvanic skin response measurements began decreasing. Although not statistically significant, the

results indicate a difference between the two groups and show a lower level of anxiety in children attending play therapy sessions without the trained therapy dog. The results suggest that the combination of play therapy and animal-assisted therapy may not necessarily be the best alternative to alleviate or even decrease children's anxiety when entering mental health services. Overall, throughout the play therapy sessions with the trained therapy dog, children's average galvanic skin response and temperature were higher than those children in the play therapy room without the trained therapy dog. Furthermore, it is important to note that there should be an expectation by the therapist that children's level of anxiety will be high due to the novelty of the situation. However, the therapist should maintain a course of treatment to reduce children's anxiety and not change formats to fit a more familiar structure for the children. Further studies that explore children's anxiety and introducing the play therapy room prior to the first session may help decrease initial anxiety for children.

This study is only an exploration of children's anxiety when entering play therapy. First of all, the results show that children's biobehavioral measurements increase with and without the presence of a trained therapy dog. These results suggest that children's anxiety level increases when beginning mental health services even though play is their natural medium of communication (Landreth, 2002). Although not statistically significant, the biobehavioral measurements of the children in the play therapy session without the trained therapy dog were consistently lower throughout the play therapy session.

In this study, the results indicate overall higher biobehavioral measurements for the children in the experimental group. Although the previous research showed that animal-assisted therapy decreased heart rate, galvanic skin response, blood pressure,

physiological arousal, and behavioral distress, this study was unable to produce statistically significant results consistent with past research (Fine, 2000; Nagengast, Baun, Megel, & Leibowitz, 1997; Robin & ten Bensel, 1985).

This study only begins to address the implications for children entering mental health services. The high level of biobehavioral measurements in children from both the experimental and comparison group indicates a substantial need for designing and implementing procedures to help minimize children's initial anxiety levels. As part of the human subjects protocol, investigators are required to inform parents that their child may exhibit signs of initial anxiety, but that the risk is minimal. However, this study may serve as a catalyst for initiating other mental health professionals to address their clients' initial anxiety upon entering counseling.

The results of the current study inspire many more research questions that need to be studied in order to provide answers and make advancements in the field of play therapy. Research questions that need to be addressed in future studies are the following: Is the combination of play therapy and animal-assisted therapy effective as a long-term treatment modality?, Does the presence of a trained therapy dog in the play therapy room decrease children's levels of anxiety after establishing a therapeutic relationship between the play therapist and the child?, Will the interaction with a trained therapy dog before and after a play therapy session relieve anxiety for children entering mental health services?, Is the combination of play therapy and animal-assisted therapy more effective with target populations?, and Is it possible to decrease children's initial anxiety with certain procedures in place?.

Moreover, additional recommendations for research are necessary in order to fully explore the previous questions. Conducting a replication of this study may help to expound on the conclusions made from the current study. However, expanding the replication study to include more than an initial session to examine patterns of children's anxiety may be beneficial. In the current study, many of the children only interacted with the trained therapy dog before and after the session suggesting that the trained therapy dog was not necessary in the play therapy room. For some of the children, the trained therapy dog appeared to be a distraction. Therefore, a comparison study is needed to examine the effects on children's biobehavioral measurements when having a trained therapy animal in the waiting room before and after a play therapy session. This future study may determine if the trained therapy dog may have a greater effect on children's anxiety level without entering the play therapy session. In addition to the biobehavioral measurements indicative of anxiety, future research may conclude stronger significance if self-report and parent report assessments such as the State-Trait Anxiety Inventory (STAI) or the Missouri Children's Picture Series were utilized.

Conclusion

Research has shown that play therapy is an effective modality in reducing children's anxiety over time (Clatworthy, 1981; Rae et al., 1989; Schmidtchen & Hobrucker, 1978). The literature has also shown animal-assisted therapy as an effective modality in decreasing children's anxiety (Friedmann et al., 1983; Hansen et al., 1999; Nagengast et al., 1997). Currently, the literature available does not address the possibilities of combining these modalities. The current study attempted to combine play therapy and animal-assisted therapy.

With matched participants in the experimental and comparison groups, the introduction of a trained therapy dog did not produce statistically significantly different results between groups. The results showed that during one 30-minute play therapy session with or without the presence of a trained therapy dog, children in both the experimental and comparison groups showed an increase on the biobehavioral measurements. The children in the experimental group with the trained therapy dog experienced higher biobehavioral measurements overall compared with the comparison group throughout the entire play therapy session. Therefore, the results indicate that the introduction of a trained therapy dog into the play therapy room may not reduce children's anxiety as previously suggested. However, in this study the children's anxiety may have been attributed to other possible factors rather than the presence of the trained therapy dog. This increase in biobehavioral measurements may have been due to the children experiencing a novel and unfamiliar situation, entering the play therapy room with a stranger, or the non-structured environment of the play therapy room. In summary, this exploration study indicates a strong need for further research before any solid conclusions can be drawn about the combination of play therapy and animal-assisted therapy.

APPENDIX A
INFORMED CONSENT AND CHILD ASSENT FORM

UNIVERSITY OF NORTH TEXAS
COMMITTEE FOR THE PROTECTION OF HUMAN SUBJECTS
RESEARCH CONSENT FORM

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Subject Name: _____ Date: _____
Title of Study: Effects of a Trained Therapy Dog in Child-Centered Play Therapy on Children's Biobehavioral Measures of Anxiety
Principal Investigator: Annette Athy

Before agreeing to participate in this research study, it is important that you read and understand the following explanation of the proposed procedures. It describes the procedures, benefits, risks, and discomforts of the study. It also describes your right to withdraw your child from the study at any time. It is important for you to understand that no guarantees or assurances can be made as to the results of the study.

Start Date of Study August 1, 2004 **End Date of Study** October 1, 2004.

PURPOSE OF THE STUDY AND HOW LONG IT WILL LAST:

You and your child are invited to participate in a research study to determine if play therapy with a trained therapy dog is an effective way of helping children. The purpose of the study is to find out if play therapy with a trained therapy dog is helpful in decreasing children's anxiety during the play therapy session.

If you agree to allow your child to participate, your child will receive one 30 minute individual therapy session. During the session, your child will be connected to sensors on his/her wrist and fingers that will measure his/her physical reaction to the therapy.

DESCRIPTION OF THE STUDY INCLUDING THE PROCEDURES TO BE USED:

Whether you allow your child to participate or not in this study will not affect his/her place on the waiting list. If you agree to allow your child to participate in this study, your child will remain on the waiting list for play therapy services at the Child and Family Resource Clinic or Hodge Elementary and will also participate in one of the following two groups for a 30 minute session one time.

Your child will be assigned to one of the following three groups: (1) combined modalities which will receive one individual play therapy session with a trained therapy dog present in the playroom or (2) play therapy which will receive one individual play therapy session without a trained therapy dog present in the playroom. During the 30 minute session, your child will be connected to an instrument that measures his/her reactions to the therapy. This device will be the size of a wrist watch and velcro around your child's arm.

Play therapy is a special kind of therapy. Your child is free to play with a specially selected group of toys in the playroom at the Child and Family Resource Clinic or Hodge Elementary and the researcher's role is to provide verbal responses to your child, based on his/her play and language, that communicate acceptance and

understanding. The researcher will not ask your child any questions or direct your child's play in any way except to make sure your child does not hurt him/herself, the trained therapy dog, or cause damage to the toys or the room. In the play therapy session with the trained therapy dog, your child will be told that he/she may interact with the dog as much or as little as he/she wants to.

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At the beginning of the study, regardless of whether your child is randomly chosen to participate in a play session in the playroom with the trained therapy dog or a play session in a playroom without a trained therapy dog, you will receive a questionnaire, the Behavior Assessment System for Children-Parent Rating Scale, which is a list of questions concerning the typical behaviors you see in your child on a daily basis. You will be asked to fill out this questionnaire at home, which takes approximately 10-20 minutes to complete, and return it directly to the researcher at the Child and Family Resource Clinic or Hodge Elementary. It is possible that you have already completed this form for the purposes of the intake procedure at the Child and Family Resource Clinic; however, for the purpose of this study, you will be asked to complete this form again.

DESCRIPTION OF THE PROCEDURES/ELEMENTS THAT ARE ASSOCIATED WITH FORSEEABLE RISKS:

There may be minimal discomfort, such as increased anxiety or discomfort wearing the sensors on his/her arm, directly involved with this study. Your participation and your child's participation are completely voluntary. You may withdraw your child at any time during the course of the study.

Because this study is designed to test how well therapy helps children, there is a risk that the reverse effects will be achieved, namely, that there could be an increase in the child's anxiety while in the therapy room. If, during the course of the study, the researcher notices any harmful effects, the session will be stopped.

BENEFITS TO THE SUBJECTS OR OTHERS:

The possible benefits to your child can include: (1) improvements in self-esteem, (2) improvements in self-directedness, and (3) improvements in self-responsibility.

CONFIDENTIALITY OF RESEARCH RECORDS:

All information will be kept confidential. Names of parents and children will not be disclosed in any publication or discussion of this material. Information obtained from the instruments will be recorded with a code number. Only the investigator will have a list of the participant's names. Video tapes of the sessions will be used to provide information regarding play behaviors. The principal investigator will view and code the video taped sessions. The video tapes, instruments, and data will be stored in a locked file cabinet behind a locked closet door located at the principal investigator's home. Only the principal investigator will have keys to both locks. After coding and the analysis, all video tapes will be erased via magnetic tape eraser and then broken to ensure confidentiality.

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RESEARCH CONSENT FORM

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REVIEW FOR PROTECTION OF PARTICIPANTS:

This research study has been reviewed and approved by the UNT Institutional Review Board (940) 565-3940.

RESEARCH SUBJECTS' RIGHTS: I have read or have had read to me all of the above.

Annette Athy has explained the study to me and answered all of my questions. I have been told the risks or discomforts and possible benefits of the study.

I understand that my child does not have to participate in this study, and my refusal to allow my child to participate will involve no penalty or loss of rights to which my child is entitled. I may withdraw my child at any time without penalty or loss of benefits to which my child is entitled. The study personnel can stop my child's participation at any time if it appears to be harmful to my child, if I or my child fail to follow directions for participation in the study, if it is discovered that my child does not meet the study requirements, or if the study is cancelled.

In case there are problems or questions and before you sign this consent form, I have been told that I can call Annette Athy, a UNT doctoral student in the Counseling Development and Higher Education Department, at telephone number (940) 300-5639 or her faculty sponsor, Dr. Dee Ray at telephone number (940) 565-2066. I understand my child's rights as a research subject, and I voluntarily consent to allow my child to participate in this study. I understand what the study is about and how and why it is being done. I will receive a signed copy of this consent form.

Signature of Parent or Guardian Date

For the Investigator or Designee:

I certify that I have reviewed the contents of this form with the person signing above, who, in my opinion, understood the explanation. I have explained the known benefits and risks of the research.

Principal Investigator or Designee Signature

Date

UNIVERSITY OF NORTH TEXAS
COMMITTEE FOR THE PROTECTION OF HUMAN SUBJECTS
ASSENT OF CHILD- AGES 7-11 ONLY
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Title of Study: EFFECTS OF A TRAINED THERAPY DOG IN CHILD-CENTERED PLAY THERAPY ON CHILDREN'S BIOBEHAVIORAL MEASURES OF ANXIETY

Principal Investigator: Annette Athy

_____ (name of child) has agreed to participate in this research study.

Signature of the Subject

Signature of the Parent or Guardian must be substituted if waiver of assent is required.

WAIVER OF ASSENT

The assent of _____ (name of child) was waived because of

_____ Age

_____ Maturity

_____ Psychological state of the child

Signature of Parent or Guardian

Date

APPENDIX B

PLAY THERAPY-RESEARCH INFORMATION FOR CHILDREN

PLAY THERAPY-RESEARCH INFORMATION FOR CHILDREN

Page 1 of 1

(To be read to child subjects age four to eleven, selecting the appropriate terms in “()” when noted. Questions will be read aloud and responded to immediately during the reading of this statement.)

My name is Annette. I am a counselor for children. That means I play and talk with children about things that are important to children. Sometimes children feel sad. Sometimes children feel scared, and sometimes children like to tell stories to adults.

(If assigned to play therapy with a trained therapy dog)
If you want to, you can play in a playroom with me and Rusty.

(If assigned to play therapy)
If you want to, you can play in a playroom with me.

If you decide you want to (play with dog/play) with someone like me in a special time, you can say yes or if you don't want to (play with dog/play) with someone like me you can say no. The special talk or play time will be one time for 30 minutes. Which do you choose? (Allow the child to respond and confirm his or her response.) Also, I would like you to know that you can always change your mind and you can tell your parent (guardian) that you do not want to go to the special (play with dog/play) time anymore.

When we go to the special playroom, I have this special watch for you to wear up on your arm. When it turns on, it makes a beep and then a tickle or vibrate on your arm. Would you like to try it on? Today, you can push the buttons, but when we go to the special playroom next week, the buttons won't be for pushing. Do you have any questions about this special watch?

What you say or do in counseling is private. I will not tell your parent or teacher what you say or do in the (play with dog/play) time. This rule will only be broken if I think you are not safe and need to be protected. If you want to tell your parent or teacher about what you do during your (play with dog/play) time, you can.

Thank you for your help.

Sincerely,

Annette Athy, MSW, LPCI
Licensed Professional Counseling Intern
Doctoral Student Counseling Intern, University of North Texas

APPENDIX C
ANIMAL SCREENING CONSENT FORM

ANIMAL SCREENING FORM- PARENT/GUARDIAN INTERVIEW
Page 1 of 1

Subject Name: _____ Date: _____
Title of Study: Effects of a Trained Therapy Dog in Child-Centered Play Therapy on Children's Biobehavioral Measures of Anxiety
Principal Investigator: Annette Athy

PET HISTORY

Tell me the length of your child's relationship with each pet and what happened. _____

How much of the pet care was the child responsible for providing? _____

What species or breed of animal did the child have? _____

ALLERGY HISTORY

Does your child have any known allergies (kind and severity)? _____

Are these allergies aggravated when in the presence of a dog? _____

TRAUMA/ ANIMAL ABUSE HISTORY

Is your child afraid of dogs? _____

Has your child ever been injured by a dog? _____

Has your child ever hurt an animal? _____

If so, did it happen one time or has it happened repeatedly over time? _____

If so, did your child hurt the animal(s) in a private place or a public place? _____

APPENDIX D

BASIC SKILLS IN PLAY THERAPY

Reproduced with permission from Dr. Dee Ray

From "Supervision of basic and advanced skills in play therapy," by D. Ray, in press, *Journal of Professional Counseling*.

Non-verbal Skills

Play therapy is heavily reliant on non-verbal skills. Because play therapists believe that play is the language of children, the verbal world becomes less important in a play therapy session. Non-verbal skills are critical to any therapy, but especially to play therapy.

Leaning forward/Open stance. The play therapist is physically directed toward the child at all times. The play therapist moves in the chair as the child moves so that the therapist is always squarely facing the child. Arms and legs are positioned to convey a sense of openness to the child.

Appearing interested. The therapist looks as if she is interested in the child throughout the session. The therapist does not appear preoccupied with other thoughts or matters.

Seems comfortable. The therapist seems comfortable with the child and the situation. The therapist remains relaxed throughout the session.

Therapist's tone/Expression congruent with child's affect. The therapist matches the level of affect displayed by the child. Often, new play therapists will present themselves as overly animated to the child. This is generally the way that many adults relate to children. Therapists new to working with children often carry the idea that their role is to make the child happy and therefore use their tone of voice toward this end. As with counseling adults, the therapist should strive to be congruent with how the child expresses himself.

Therapist's tone/Expression congruent with therapist's responses. The therapist should not only match the child's affect but should also convey a sense of genuineness. The skill of matching verbal response with non-verbal response is symptomatic of the therapist's level of genuineness with the child. Specifically speaking, the therapist would not flatly present the response, "You're excited by how you made the bubbles." In this example, the therapist would need to add the affect of excitement to the response. In addition, this skill also addresses the tendency of some therapists to end their responses in a higher tone, indicating a question. When making definitive responses, therapists should avoid this habit, which is confusing to the child. The child is left to figure out how to respond to the therapist, "Should I answer or not?"

Verbal Skills

The delivery of verbal responses by a play therapist to the child is almost as important as the words chosen. Two delivery skills are observed specifically in the supervision of play therapists, succinct/interactive responses and rate of responses. Because play therapy is offered to children and because play therapy recognizes the limited language ability of children, the importance of short therapeutic responses is key. Supervisors help play therapists to communicate their intent in as few words as possible. A maximum of ten words is a good rule of thumb. Lengthy responses lose the interest of the child quickly, confuse the child, and often convey a lack of understanding on the part of the therapist.

Rate of responses is a second skill in the delivery of verbal responses. The therapist should match the interaction of the child. If the child is quiet and reserved, then the play therapist will slow his responses. If the child is highly interactive and talkative,

the play therapist will want to match this level of energy with increased number of responses. In initial sessions with children, play therapists will have a quicker rate of responses, because silence can be uncomfortable for the child in a new situation. In subsequent sessions, the therapist will learn to create a pace that matches the child. Both delivery skills of length of responses and rate of responses are typically problematic skills at the very beginning of a play therapist's experience. These skills are quickly acquired and most supervisors will not address them with experienced play therapists.

In the initial supervision of the play therapists, it helps to present categories of verbal responses. These categories provide the play therapist with structure from which to work when the situation is new and foreign to them. For experienced play therapists, the construct of categorical responses helps them to review the basics when they are feeling unfocused or confused about specific cases. The following are several relevant categories of verbal responses.

Tracking behavior. Tracking behavior is the most basic of play therapist responses. The therapist tracks behavior when she verbally responds to the behavior of the child simply by stating what is seen or observed. Tracking behavior allows the child to know that the therapist is interested and accepting of the child. It also helps the therapist immerse herself into the child's world. Examples of tracking behavior include, (as a child picks up the clay) "You're picking that up" or (as child runs in a circle) "You're running around and around."

Reflecting content. Reflecting content in play therapy is identical to reflecting content in adult talk therapy. To reflect content, the play therapist paraphrases the

verbal interaction of the child. Reflecting content validates the children's perceptions of their experience and helps to clarify children's understanding of themselves (Landreth, 2002). An example of reflecting content includes, (child excitedly shares detailed story of building a rocket with his dad) "You got to build something cool with your dad this weekend."

Although tracking behavior and reflecting content are essential to the play therapy process, they are the most basic skills in play therapy. These two skills help to build a relationship with a child so that the child can benefit from higher-level skills. The following skills are used to move directly toward the goals of building self-concept, developing self-responsibility, creating awareness, and building the therapeutic relationship.

Reflecting feeling. Reflecting feeling is the verbal response to emotions expressed by children in play therapy. Reflecting feeling is considered a higher-level skill, because children rarely communicate in terms of verbally expressing emotion. However, they are quite emotive. In addition, the reflection of feeling can sometimes be threatening to a child and should be presented carefully. Reflecting feeling helps a child become aware of emotions, thereby, leading to the appropriate acceptance and expression of such emotions. Examples of reflecting feeling include, (child throws the spider across the room while saying, "He's bad, I hate him.") "You are really angry with that bad spider" or (child tries several times to take the top off marker unsuccessfully and then throws it on the floor) "You're really frustrated with that."

Facilitating decision-making/Returning responsibility. One of the play therapist's goals is to help the child experience a sense of their own capability and to take

responsibility for their expression of capability. The therapist does not do for a child what a child can do for himself (Landreth, 2002). Responses that facilitate decision-making or return responsibility help a child experience self as able and empowered. Examples of responses that facilitate decision-making or return responsibility include, (child wants to draw a picture and asks, "What color should the car be?") "In here, you can decide the color you want it to be", or (without making an attempt, the child asks, "Can you get the ball from behind the shelf for me?") "That looks like something you can do."

Facilitating creativity/Spontaneity. Helping a child experience his own sense of creativity and freedom to experience creativity is another goal of play therapy. Acceptance and encouragement of creativity sends a message to the child that she is unique and special in her own way. Maladjusted children are often trapped in rigid ways of acting and thinking. Experiencing the freedom of expression allows them to develop flexibility in thought and action. Examples of responses that facilitate creativity or spontaneity include (child asks, "What do I make with these straws?") "You can create whatever you want with those", or (child moves from one project to another in play session) "You changed to do just what you want."

Esteem-building/Encouraging. Encouraging children to feel better about themselves is a constant objective for the play therapist. The use of esteem-building statements works to help children experience themselves as capable. Examples of esteem-building/encouraging responses include, (child tries a few ways to reach the top shelf) "You're not giving up, you just keep trying" or (child tries and tries to fit doll into car, after a few attempts, she succeeds) "You did it. You figured it out."

Initially, play therapists often struggle with the difference between praising and esteem-building responses. The play therapist supervisor must often help a play therapist determine how an esteem-building response is more effective than a praising response. A praise response, such as, “That’s a pretty picture” or “I like the way you did that” encourages the child to perform for the therapist, and continue to seek external reinforcement, thereby eroding a sense of self. An esteem-building response, such as, “You’re really proud of your picture,” or “You made that just the way you wanted,” encourages children to develop an internal sense of evaluation leading to an internal sense of responsibility.

Facilitating relationship. Responses that focus on the relationship between the therapist and child help the child to experience a positive relationship. Because the therapy relationship serves as a model for all intimate relationships, the therapist should respond to any attempt by the child to address the relationship. Relational responses help the child learn effective communication patterns and express the therapist’s care for the child. Example of responses that facilitate the relationship include, (child is building something in sand and stops to look up at therapist but says nothing) “You’re wondering what I think about that,” or (therapist sneezes, child gives therapist a bowl and says, “Eat the soup so you’ll feel better.”) “You really want to take care of me” or (after therapist sets limit, child responds, “I hate you. I hate you.”) “You’re really angry with me for this.” Relationship responses should always include a reference to the child and reference to self as therapist.

Limit Setting

Landreth (2002) proposed a specific method for setting limits in play therapy.

This method has been widely adopted by play therapists as the initial response to setting a limit in the playroom. The A-C-T model of limit-setting includes: Acknowledge the feeling, Communicate the limit, and Target an alternative. In this model, the play therapist recognizes and addresses the child's feelings in the moment, "You're really angry with me." Secondly, the therapist sets a short, concrete, definitive limit, "but I'm not for hitting." Finally, the therapist provides an alternative to the action, "You can hit the Bop bag." When children have directed energy in the moment, it is important to provide them an alternative for that energy so that they do not feel the need to act on impulse. Although there are other methods for setting limits, the A-C-T model is short, direct, and works effectively.

REFERENCES

- Anderson, J., Williams, S., McGee, R., & Silva, P. (1987). DSM-III disorders in preadolescent children: Prevalence in a large sample from the general population. *Archives of General Psychiatry, 44*, 69-76.
- Arkow, P. (1982). *Pet therapy: A study of the use of companion animals in selected therapies*. Colorado Springs, CO: Humane Society of Pikes Peak Region.
- Axline, V. (1947). *Play therapy*. New York: Ballantine.
- Axline, V. (1950). Entering the child's world via play experiences. *Progressive Education, 27*, 68-75.
- Axline, V. (1969). *Play therapy*. New York: Ballantine.
- Barak, Y., Savorai, O., Mavashev, S., & Beni, A. (2001). Animal-assisted therapy for elderly schizophrenic patients: A one-year controlled trial. *American Journal of Geriatric Psychiatry, 9*(4), 439-442.
- Barker, S. B., & Dawson, K. S. (1998). The effects of animal-assisted therapy on anxiety ratings of hospitalized psychiatric patients. *Psychiatric Services, 49*(6), 797-801.
- Barker, S. B., Pandurangi, A. K., & Best, A. M. (2003). Effects of animal-assisted therapy on patients' anxiety, fear, and depression before ECT. *The Journal of ECT, 19*(1), 38-44.
- Barnett, L. (1984). Research note: Young children's resolution of distress through play. *Journal of Child Psychology and Psychiatry, 25*(3), 477-483.
- Barnett, L., & Storm, B. (1981). Play, pleasure, and pain: The reduction of anxiety through play. *Leisure-Sciences, 4*(2), 161-175.

- Barrios, B., & O'Dell, S. (1989). Fears and anxieties. In E. J. Mash & R. A. Barclay (Eds.), *Treatment of Childhood Disorder* (pp. 167-221). New York: Guilford.
- Baun, M., Bargstrom, N., & Langston, N. (1984). Physiological affects of human/companion animal bonding. *Nursing Research, 50*, 126-129.
- Beck, A., Hunter, K., & Seraydarian, L. (1986). Use of animals in the rehabilitation of psychiatric inpatients. *Psychological Reports, 58*, 63-66.
- Beck, A. M., & Katcher, A. H. (1983). *Between pets and people: The importance of animal companionship*. New York: Pedigree.
- Beck, A. M., & Katcher, A. H. (1984). A new look at pet facilitated therapy. *Journal of the American Veterinary Medical Association, 184*, 414-421.
- Bell-Dolan, D. J., Last, C. G., & Strass, C. C. (1990). Symptoms of anxiety disorders in normal children. *Journal of the American Academy of Child and Adolescent Psychiatry, 29*, 759-765.
- Billington, G. (1972). Play program reduces children's anxiety, speeds recoveries. *Modern Hospital, 118*(4), 90-92.
- Birenbaum, R. (1980). Easing the trauma of hospitalization. *Health Care, 22*(6), 19-20.
- Blue, G. F. (1986). The value of pets in children's lives. *Childhood Education, 63*(2), 85-90.
- Burch, M. R. (1996). *Volunteering with your pet: How to get involved in animal-assisted therapy*. New York, NY: Macmillan.
- Cassell, S. (1965). Effect on brief puppet therapy upon the emotional responses of children undergoing cardiac catheterization. *Journal of Consulting Psychology, 29*(1), 1-8.

- Castellanos, D., & Hunter, T. (1999). Anxiety disorders in children and adolescents. *Southern Medical Journal*, 92(10), 945-955.
- Chandler, C. (2001). *Animal-assisted therapy in counseling and school settings* (Report No. EDO-CG-01-05). Greensboro, NC: Clearinghouse on Counseling and Student Services. (ERIC Document Reproduction Service No. ED459404)
- Cheah, C. S., Nelson, L. J., & Rubin, K. H. (2001). Nonsocial play as a risk factor in social and emotional development. In A. Goncu & E. L. Klein (Eds.), *Children in play, story, and school* (pp.39-71). New York: The Guilford Press.
- Cieslak, E. J. (2001). Animal assisted therapy and the development of an early working alliance: The use of dogs in therapy with young adults. *Dissertation Abstracts International*, 62 (04), 2051B. (UMI No. 3012481)
- Clatworthy, S. (1978). The effect of therapeutic play on the anxiety behaviors of hospitalized children (Doctoral dissertation, Boston University, Boston, 1978). *Dissertation Abstracts International*, B 38(12), 6142.
- Clatworthy, S. (1981). Therapeutic play: Effects on hospitalized children. *Journal of Association for Care of Children's Health*, 9(4), 108-113.
- Condoret, A. (1977). The child's relationship with household pets and domestic animals. *Bulletin of the French Veterinary Academy*, 50, 481-490.
- Dashnaw Stiles, L. A. (2001). Animal-assisted therapy with children and the elderly: A critical review. *Dissertation Abstracts International*, 62 (05), 2480B. (UMI No. 3014937)

- Deane, F. P., & Chamberlain, K. (1994). Treatment fearfulness and distress as predictors of professional psychological help-seeking. *British Journal of Guidance & Counseling, 22*(2), 207-218.
- Deffenbacher, J. L. (1992). Counseling for anxiety management. In S. D. Brown & R. W. Lent (Eds.), *Handbook of counseling psychology* (2nd ed., pp. 719-756). New York: Wiley & Sons, Inc.
- Delta Society. (2004). *The Pet Partners team training course manual: A Delta Society program for animal-assisted activities and therapy*. Renton, WA: Author.
- DeRoche, T. R. (1990). The effects of a counseling orientation videotape upon children's knowledge and attitudes regarding mental health counseling. (Doctoral dissertation, University of Florida, Gainesville, 1990). *Dissertation Abstracts International, A 52* (01), 80.
- Dhooper, M. K. (2003). Animal-assisted therapy: The effects of the presence of a trained therapy dog on group anxiety management training. *Dissertation Abstracts International, 64* (08), 4031B. (UMI No. 3100580)
- Dickstein, S. L. (1997). *The effects of the presence of a friendly dog on anxiety and rapport development*. Unpublished doctoral dissertation, Hofstra University, Hempstead, NY.
- Faust, J., Olson, R., & Rodriguez, H. (1991). Same-day surgery preparation: Reduction of pediatric patient arousal and distress through participant modeling. *Journal of Consulting and Clinical Psychology, 59*, 475-478.
- Fine, A. H. (2000). *Handbook on animal-assisted therapy: Theoretical foundations and guidelines for practice*. San Diego, CA: Academic Press.

- Francis, G., Last, C., & Strauss, C. (1987). Expression of separation anxiety disorder: The roles of age and gender. *Child Psychiatry and Human Development*, 87, 82-89.
- Friedmann, E. (2000). The animal-human bond: Health and wellness. In A. H. Fine (Ed.), *Handbook on animal-assisted therapy: Theoretical foundations and guidelines for practice* (pp. 41-58). San Diego, CA: Academic Press.
- Friedmann, E., Katcher, A. H., Thomas, S. A., Lynch, J. J., & Messent, P. R. (1983). Social interaction and blood pressure. Influence of companion animals. *Journal of Nervous and Mental Disease*, 171, 543-551.
- Friedmann, E., Locker, B., & Lockwood, R. (1993). Perception of animals and cardiovascular responses during verbalization with an animal present. *Anthrozoos*, 62, 115-133.
- Fruin, M. L., & Rankin, J. W. (2004). Validity of a multi-sensor armband in estimating rest and exercise energy expenditure. *Medicine and Science in Sports and Exercise*, 36(6), 1063-1069.
- Garber, S. W., Garber, M. D., & Spizman, R. F. (1993). *Monsters under the bed and other childhood fears: Helping your child overcome anxieties, fears, and phobias*. New York: Villard Books.
- Garrity, T. F., & Stallones, L. (1998). Effects of pet contact on human well-being: Review of recent research. In C. C. Wilson & D. C. Turner (Eds.), *Companion animals in human health* (pp. 3-22). Thousand Oaks, CA: Sage Publications, Inc.

- George, H. (1988). Child therapy and animals: A new way for an old relationship. In C. E. Schaefer (Eds.), *Innovative interventions in child and adolescent therapy* (pp. 400-418). New York: John Wiley.
- Golden, D. B. (1983). Play therapy for hospitalized children. In C. E. Schaefer & K. J. O'Connor (Eds.), *Handbook of play therapy* (pp. 213-233). New York: John Wiley & Sons, Inc.
- Gonski, Y. A. (1985). The therapeutic utilization of canines in a child welfare settings. *Child and Adolescent Social Work Journal*, 2(2), 93-105.
- Gray, M., Kemp, A. H., Silberstein, R. B., & Nathan, P. J. (2003). Cortical neurophysiology of anticipatory anxiety: An investigation utilizing steady state probe topography (SSPT). *NeuroImage*, 20(2), 975-986.
- Guernsey, L. (1983). Client-centered (nondirective) play therapy. In C. E. Schaefer & K. J. O'Connor (Eds.), *Handbook of play therapy* (pp. 21-64). New York: John Wiley & Sons, Inc.
- Guernsey, L. (2001). Child-centered play therapy. *International Journal of Play Therapy*, 10(2), 13-31.
- Hansen, K. M., Messinger, C. J., Baun, M. M., & Megel, M. (1999). Companion animals alleviating distress in children. *Anthrozoos*, 12(3), 142-148.
- Hart, L. A. (2000). Psychosocial benefits of animal companionship. In A. H. Fine (Ed.), *Handbook on animal-assisted therapy: Theoretical foundations and guidelines for practice* (pp. 59-78). San Diego, CA: Academic Press.

- Harvey, P. D., Davidson, M., Mueser, K. T., Parrella, M., White, L., & Powchik, P. (1997). Social-adaptive functioning evaluation (SAFE): A rating scale for geriatric psychiatric patients. *Schizophrenia Bull*, 23, 456-463.
- Hinkle, D., Wiersma, W., & Jurs, S. (2003). *Applied statistics for behavioral sciences* (5th ed). Boston: Houghton Mufflin Company.
- Hoelscher, K., & Garfat, T. (1993). Talking to the animal. *Journal of Child and Youth Care*, 8(3), 87-92.
- Jakicic, J. M., Marcus, M., Gallagher, K., Randall, C., Thomas, E., Goss, R., & et al. (2004). Evaluation of the SenseWear Pro Armband™ to assess energy expenditure during exercise. *Medicine and Science in Sports and Exercise*, 36(5), 897-904.
- James, D. O. (1977). *Play therapy: An overview*. Oceanside, NY: Dabor Science Publications.
- Jay, S. M., & Elliott, C. (1986). *Observation scale of behavioral distress-revised. Information procedures, definitions of behaviors, OSBD interval coding form*. Los Angeles: Children's Hospital.
- Jemerin, J. M., & Boyce, W. T. (1990). Psychological differences in childhood stress response II. Cardiovascular markers of vulnerability. *Developmental and Behavioral Pediatrics*, 11, 140-150.
- Jennings, G. L. R., Reid, C. M., Christy, I., Jennings, J., Anderson, W. P., & Dart, A. (1998). Animals and cardiovascular health. In C. C. Wilson & D. C. Turner (Eds.), *Companion animals in human health* (pp. 161-171). Thousand Oaks, CA: Sage Publications, Inc.

- Johnson, P. A., & Stockdale, D. F. (1975). Effects of puppet therapy on Palmar sweating of hospitalized children. *The Johns Hopkins Medical Journal*, 137, 1-5.
- Kasabach, C., Pacione, C., Stivoric, J., Teller, A., & Andre, D. (2002). Why the upper arm? Factors contributing to the design of an accurate and comfortable, wearable body monitor. Retrieved August 12, 2004, from http://www.BodyMedia.com/pdf/Wearability_whitepaper.pdf.
- Katcher, A. H. (1981). Interactions between people and their pets: Form and function. In B. Fogle (Ed.), *Interactions between people and pets* (pp. 41-67). Springfield, IL: Charles C Thomas.
- Katcher, A. H. (1983). Man and the living environment: An excursion into cyclical time. In A. Katcher & A. Beck (Eds.), *Perspectives on our lives with companion animals* (pp. 519-531). Philadelphia: University of Pennsylvania Press.
- Katcher, A. H. (1985). Physiologic and behavioral responses to companion animals. In J. Quackenbush & V. Voith (Eds.), *The human-companion-animal bond, The Veterinary Clinics of North America: Small Animal Practice*, 15(2), 403-410.
- Katcher, A. H., & Wilkins, G. (1993). Dialogue with animals: Its nature and culture. In E. O. Wilson & S. Kellert (Eds.), *The biophilia hypothesis*. Washington, DC: Island Press.
- Kuno, Y. (1934). *The physiology of human perspiration*. London: J & A Churchill.
- Kuno, Y. (1956). *Human perspiration*. Springfield, IL: Charles C Thomas.
- Landreth, G. L. (2002). *Play therapy: The art of the relationship* (2nd ed.). New York: Brunner-Routledge.

- Landreth, G. L., & Sweeney, D. S. (1997). Child-centered play therapy. In K. O'Connor & L. M. Braverman (Eds.), *Play therapy theory and practice: A comparative presentation* (pp. 17-45). New York: John Wiley & Sons, Inc.
- Lapouse, R., & Monk, M. (1964). Fears and worries in a representative sample of children. *American Journal of Orthopsychiatry*, 29, 803-818.
- Levinson, B. M. (1962). The dog as co-therapist. *Mental Hygiene*, 46, 59-65.
- Levinson, B. M. (1969). *Pet-oriented child psychotherapy*. Springfield, IL: Charles C. Thomas.
- MacDonald, A. (1979). Children and companion animals. *Child: Care, Health, and Development*, 5, 347-358.
- Mallon, G. P. (1992). Utilization of animals as therapeutic adjuncts with children and youth: A review of the literature. *Child and Youth Care Forum*, 21(1), 53-67.
- Mallon, G. P., Ross, S. B., Jr., & Ross, L. (2000). Designing and implementing animal-assisted therapy programs in health and mental health organizations. In A. H. Fine (Ed.) *Handbook on animal-assisted therapy: Theoretical foundations and guidelines for practice* (pp. 115-127). San Diego, CA: Academic Press.
- Martin, F., & Farnum, J. (2002). Animal-assisted therapy for children with pervasive developmental disorders. *Western Journal of Nursing Research*, 24(6), 657-670.
- McMahon, L. (1992). *The handbook of play therapy*. New York: Tavistock/Routledge.
- Meer, P. A. (1985). Using play therapy in outpatient settings. *American Journal of Maternal Medical Nursing*, 10, 378-380.

- Messent, P., & Serpell, J. (1981). An historical view of the pet-owner bond. In B. Fogle (Ed.), *Interactions between people and pets* (pp. 5-22). Springfield, IL: Charles C. Thomas.
- Miller, L., & Ingram, L. (2000). Preoperative nursing and animal-assisted therapy. *Association of Operating Room Nurses Journal*, 73(3), 477-483.
- Milos, M. & Reiss, S. (1982). Effects of three play conditions on separation anxiety in young children. *Journal of Consulting and Clinical Psychology*, 50, 389-395.
- Moustakas, C. E. (1955). The frequency and intensity of negative attitudes expressed in play therapy: A comparison of well-adjusted and disturbed young children. *The Journal of Genetic Psychology*, 86, 309-325.
- Moustakas, C. E. (1975). *Who will listen? Children and parents in therapy*. New York: Ballantine.
- Nagengast, S. L., Baun, M. M., Megel, M., & Leibowitz, M. J. (1997). The effects of the presence of a companion animal on physiological and behavioral distress in children during a physical examination. *Journal of Pediatric Nursing*, 12, 323-330.
- Neumann, E. A. (1971). *The elements of play*. New York: MSS Information Corporation.
- Nickerson, E. T. (1974). *Helping children: Readings in recent approaches to the practice of therapy with children*. Lexington, MA: College Xerox Publishing.
- Norusis, M. (1995). *SPSS 6.1: Guide to data analysis*. Englewood Cliffs, NJ: Prentice-Hall.
- Oaklander, V. (1988). *Windows to our children: A Gestalt therapy approach to children and adolescents*. Highland, NY: The Gestalt Journal Press.

- Odendaal, J. S. J. (2000). Animal-assisted therapy - magic or medicine? *Journal of Psychosomatic Research*, 49(4), 275-280.
- Peacock, C. (1986, August). *The role of the therapeutic pet in initial psychotherapy sessions with adolescents*. Paper presented to Delta Society International Conference, Boston.
- Perry, B. (1993). Neurodevelopment and the psychophysiology of trauma II: Clinical work along the alarm-fear-terror continuum. *American Professional Society on the Abuse of Children Advisor*, 6(2), 1-20.
- Perry, B. (2004). The importance of pleasure in play. *Early Childhood Today*. Retrieved October 22, 2004, from <http://teacher.scholastic.com/professional/bruceperry/pleasure.htm>
- Perry, B., & Pollard, R. (1998). Homeostasis, stress, trauma, and adaptation-A neurodevelopment view of childhood trauma. *Child and Adolescent Psychiatric Clinics of North America*, 7(1), 33-51.
- Piaget, J. (1962). *Play, dreams and imitation in childhood*. New York: Rutledge.
- Rae, W. A., Worchel, F. F., Upchurch, J., Sanner, J. H., & Daniel, C. A. (1989). The psychosocial impact of play on hospitalized children. *Journal of Pediatric Psychology*, 14(4), 617-627.
- Ray, D. (in press). Supervision of basic and advanced skills in play therapy. *Journal of Professional Counseling*.
- Ray, D., Bratton, S., Rhine, T., & Jones, L. (2001). The effectiveness of play therapy: Responding to the critics. *International Journal of Play Therapy*, 10(1), 85-108.

- Reichert, E. (1994). Play and animal-assisted therapy: A group-treatment model for sexually abused girls ages 9-13. *Family Therapy, 21*(1), 55-62.
- Reynolds, C. R. & Kamphaus, R. W. (1992). *Behavior assessment system for children*. Circle Pines, MN: American Guidance Service.
- Robin, M., & ten Bensel, R. (1985). Pets and the socialization of children. *Marriage and Family Review, 8*(3-4), 63-78.
- Robin, M., ten Bensel, R., Quigley, J., & Anderson, R. K. (1983). Childhood pets and psychosocial development of adolescents. In A. H. Katcher & A. M. Beck (Eds.), *New perspectives in our lives with companion animals* (pp. 112-116). Philadelphia: University of Pennsylvania Press.
- Rogers, C. R. (1961). *On becoming a person: A therapist's view of psychotherapy*. Boston, MA: Houghton Mifflin Company.
- Ross, S. B. (1983). The therapeutic use of animals with the handicapped. *International Child Welfare Review, 56*, 26-39.
- Schmidtchen, V. S., & Hobrucker, B. (1978). The efficiency of client-centered play therapy. *Praxis der Kinderpsychologie und Kinderpsychiatrie, 27*, 117-125.
- Sines, J. O., Pauker, J. D., & Sines, L. K. (1974). *The Missouri children's a picture series manual*. Iowa City: Psychological Assessment & Services, Inc.
- Soares, C. J. (1985). The companion animal in the context of the family system. *Marriage and Family Review, 8*(3-4), 49-62.
- Spielberger, C. D. (1977). *State-Trait Anxiety Inventory manual*. Palo Alto, CA: Mind Garden.

- Straatman, I., Hanson, E. K. S., Endenburg, N., & Mol, J. A. (1997). The influence of a dog on male students during a stressor. *Anthrozoos*, 10, 191-197.
- Thompson, B. (2002). "Statistical," "Practical," and "Clinical:" How many kinds of significance do counselors need to consider? *Journal of Counseling and Development*, 80, 64-71.
- Thompson, S. (1998, Spring). Stress, anxiety, panic, and phobias: Secondary to NLD. *The Gram: LDA-CA Newsletter*.
- Thomson, M. L., & Sutarman. (1953). The identification enumeration of active sweat glands in man from plastic impressions of the skin. *Transactions of the Royal Society of Tropical Medicine and Hygiene*, 47(5), 412-417.
- Triebenbacher, S. L. (1998). The relationship between attachment to companion animals and self-esteem: A developmental perspective. In C. C. Wilson & D. C. Turner (Eds.), *Companion animals in human health* (pp. 135-148). Thousand Oaks, CA: Sage Publications, Inc.
- Twenge, J. M. (Dec. 2000). The age of anxiety? Birth cohort, change in anxiety and neuroticism, 1952-1993. *Journal of Personality and Social Psychology*, 79(6), 1007-1021.
- Venable, W. M., & Thompson, B. (1998). Caretaker psychological factors predicting premature termination of children's counseling. *Journal of Counseling & Development*, 76(3), 286-294.
- Vogt, W. P. (1999). *Dictionary of statistics and methodology: A nontechnical guide for the social sciences* (2nd ed.). London: Sage.

- Watson, J. S. (1986). The effects of play therapy and talk-write therapy on reduction of anxiety and stress in learning disabled high school students. (Doctoral dissertation, University of Southern California, Los Angeles, 1986). *Dissertation Abstracts International*, A 47 (02), 426.
- Wilson, C. C. (1991). The pet as an anxiolytic intervention. *Journal of Nervous and Mental Disease*, 179, 482-489.
- Winnicott, D. W. (1971). *Playing and reality*. London, Tavistock.
- Winnicott, D. W. (1986). Transitional objects and transitional phenomena. In P. Buckley (Ed.), *Essential papers on object relations* (pp. 254-271). New York: New York University Press.