

EFFICACY OF ANIMAL-ASSISTED THERAPY IN LOWERING ANXIETY SYMPTOMS
OF ADOLESCENTS IN SCHOOLS

BY

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DEDICATION PAGE

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ABSTRACT

Adolescence is marked by a period of stress with a portion of these individuals experiencing problems with anxiety. There are physical and psychological benefits of using animal-assisted therapy (AAT) for decreasing anxiety, however, the research on this is limited. The current study expands on the AAT literature by studying the additive effects of AAT along with the frontline treatment for anxiety, Cognitive Behavioral Therapy (CBT). CBT only and CBT + AAT treatment groups followed a structured protocol focused on psychoeducation and practicing coping skills for anxiety using groups of 2 to 4 participants in the school setting. Single subject design and nonparametric statistics were used to analyze treatment data on measures of anxiety and therapeutic alliance from ten students ages 10 to 15 across two school districts. Although the data on measures and therapeutic alliance did not approach significance, observable trends show CBT and AAT may be beneficial in decreasing anxiety symptoms for some students. The nature of self-report data and the small number of participants were limitations of the study. Overall this study used comparison groups to show that therapy dogs are not a hindrance to therapy and may be beneficial for some students.

Chapter 1

Introduction

Mental health issues are omnipresent in today's U.S. society. The National Institute of Mental Health (2015) has reported 20% of children are currently or have previously experienced mental health problems. This number rises to 43% for individuals between 13 and 18 years old. Of this population of adolescents, 25% of mental illness is related to an anxiety disorder.

Anxiety

Anxiety disorders are characterized by heightened fear in anticipation of a situation that can be real or imagined and lead to avoidance of the event. Psychological symptoms include restlessness, difficulty concentrating, and irritability (American Psychiatric Association, 2013). There are several types of anxiety disorders specified in the Diagnostic and Statistical Manual—5 (DSM-5; American Psychiatric Association, 2013). These include specific phobia, separation anxiety disorder, selective mutism, social anxiety disorder, agoraphobia, panic disorder, and generalized anxiety disorder.

Anxiety disorders are important to study because long-term anxiety can have a negative impact on friendships and romantic relationships (Hebert, Fales, Nangle, Papadakis, & Grover, 2013). Long-term anxiety can also lead to physical health problems including chronic obstructive pulmonary disease (Gudmundsson et al., 2006) and heart disease (Berecki-Gisolf, McKenzie, Dobson, McFarlane, & McLaughlin, 2012). Even short-term anxiety can be problematic as it can contribute to poor academic achievement (Seipp, 1991; Sharma, 1970; von der Embse & Witmer, 2014). Finally, difficulty learning to cope with anxiety can lead to abuse of alcohol, nicotine, and illegal substances (Asselmann, Wittchen, Lieb, Höfler, & Beesdo-Baum, 2014; Lopez, Turner, Saavedra, 2005; Sonntag, Wittchen, Höfler, Kessler, & Stein, 2000;

Wolitzky-Taylor et al., 2015). With all of the negative consequences associated with anxiety disorders, it is important to be knowledgeable about treatment options.

Treatment for Anxiety Disorders

Literature on the treatment of anxiety disorders for adults and youth indicate that treatment typically includes medication (e.g., a selective serotonin reuptake inhibitor), psychotherapy, or their combination (Heuzenroeder et al., 2004). When therapy is used, a behavioral or cognitive-behavioral approach to treatment has demonstrated effectiveness (Huberty, 2014). This typically includes psychoeducation about anxiety; understanding one's thoughts, behaviors, and emotions surrounding anxiety; learning coping skills; and going through exposure tasks.

Most research evidence supports cognitive-behavior therapy (CBT) for treating anxiety disorders (Heuzenroeder et al., 2004; Hofmann, Wu, & Boettcher, 2014; Ishikawa, Okajima, Matsuoka, & Sakano, 2007). The Beck Institute for Cognitive Behavior Therapy (n.d.) defines CBT as “a solution focused approach to treatment, oriented toward solving problems and learning skills.” The therapist and client work collaboratively as a team to address behaviors, emotions, and thoughts that are perpetuating the individual's anxiety. In a review of meta-analyses on treating anxiety disorders in adults and youth, Hoffman and Smit (2008) found cognitive behavior therapy treatment was associated, on average, with a large effect size.

Coping Cat and the C.A.T. Project. The Coping Cat (Kendall & Hedtke, 2006) and C.A.T. Project (Kendall, Choudhury, Hudson, & Webb, 2002) are two CBT manuals that were developed by Kendall and his colleagues to treat anxiety. The Coping Cat was developed for ages 7 to 13, while the C.A.T. Project is appropriate for ages 14 to 17. Both manuals describe 16-session programs for anxiety treatment that include psychoeducation in the first eight sessions

and exposure tasks in the last eight sessions. Both manuals have been studied empirically, however, the Coping Cat has been more extensively researched and is considered to be a “Well-Supported Evidenced-Based Program” (California Evidence-Based Clearinghouse for Child Welfare, 2015). Part of the success of the Coping Cat can be attributed to their allowance of flexibility while maintaining integrity of the program. By allowing for clinical judgment and individualization, the program can be adapted to the needs of the client within the realm of standardization. Additionally, the authors of the Coping Cat regularly provide articles that discuss how to maintain fidelity within the program while having flexibility (Beidas, Benjamin, Puleo, Edmunds, & Kendall, 2010).

One thing that came out of this flexibility was the creation of a standardized, eight-session version of the Coping Cat called the Brief Cognitive Behavioral Therapy (Beidas, Mychailyszyn, Podell, & Kendall, 2013). This program was evaluated and preliminary evidence suggests that it is as effective as the full-length version. However, the researchers caution that there may be less time to build rapport, and the long-term effects of Brief Cognitive Behavioral Therapy have not been tested.

The C.A.T. Project emerged from the Coping Cat after the researchers decided it was important to address needs specific to adolescents in a way that matched their level of cognitive maturity (Kendall et al., 2002). Similar to the Coping Cat, there are 16 sessions with 8 sessions dedicated to psychoeducation and 8 sessions for exposure exercises.

In spite the scientific evidence, CBT is not a panacea. Often underrecognized in CBT is the importance of the therapeutic alliance (Castonguay, Constantino, McAleavey, & Goldfried, 2010). The focus on problem solving and skill-building is put before rapport building. Some believe that the working alliance is brought about as a consequence of the collaboration inherent

in good problem solving and skill building. One way to overcome the issue of therapeutic alliance might be to add a canine co-therapist. Research, which is described below, points to the benefits therapy dogs have in improving mental health as an adjunct to treatment.

Animal-Assisted Therapy. A therapist who uses animal-assisted therapy (AAT) strategically capitalizes on the skills of a therapy animal (e.g., dog) to promote positive human-animal interactions and facilitate the mental and physical well-being of a client (Chandler, 2012; International Association of Human-Animal Interaction Organizations, 2013). In doing so, the therapist and therapy animal work together as a team (Pet Partners, n.d.) in a formal therapeutic process with goal-directed interventions that are documented by treatment plans and case notes (Chandler, 2012).

Settings where therapy dogs are used include hospitals, nursing homes, outpatient clinics, and schools (Pet Partners, n.d.). Therapy dogs enhance the therapeutic relationship by soothing the client, increasing motivation to engage in sessions, providing unconditional positive regard, giving the client affection, and creating an environment that is built on trust (Chandler, 2012). Animal-assisted therapy does not replace any type of therapy, but instead is intended to work within multiple theoretical orientations (Chandler, Portrie-Bethke, Minton, Fernando, & O'Callaghan, 2010). One can think of the therapy dog as a mechanism to improve therapeutic outcomes, as an adjunct to therapy, or more simply, as a co-therapist (Chandler, 2012; Fine, 2015).

Kamioka and colleagues (2014) conducted a rigorous systematic review on the efficacy of animal-assisted therapy by assessing published randomized-controlled trials (RCTs) utilizing the guidelines set forth by the Cochrane Review. The Cochrane Review is a checklist for determining methodological quality of a study. Kamioka et al.'s systematic review included

studies assessing populations of all ages, physical and mental disabilities, and any variety of animal species, as long as the study followed the American Veterinary Medical Association's definition of animal-assisted therapy, included at least one AAT treatment group, and was a randomized-controlled trial. They found the RCTs using AAT were limited and of relatively low quality. This finding points to the downside of AAT's current research base—that it is largely understudied and what is available often lacks the methodological rigor necessary to draw empirical conclusions. Despite this, they were able to conclude that AAT may be effective for mental disorders such as depression, schizophrenia, and drug/alcohol addiction.

Other researchers have found through randomized-controlled studies that physiological indicators of anxiety, such as heart rate, blood pressure, and neurochemicals, are lowered in the presence of a therapy dog (Allen, Shykoff, & Izzo, 2001; Odendaal, 2000). This supports that a therapy dog acts as a buffer to anxiety. Additionally, a meta-analysis showed therapy dogs have led to client improvement in psychosocial outcomes, such as anxiety (Nimer & Lundahl, 2007). Furthermore, by decreasing anxiety, research suggests therapy dogs can help students improve their reading scores (Intermountain Therapy Animals, n.d.), thereby demonstrating the dogs usefulness in schools.

Only three studies known to date have utilized a therapy dog in conjunction with cognitive-behavioral techniques. First, Hunt and Chizkov (2014) found that among college-age students who had experienced a traumatic event, anxiety brought out by writing about their trauma was lowered with a dog present. Second, Gonzalez-Ramirez, Ortiz-Jimenez, and Landero-Hernandez (2013) found greater attendance in CBT groups that utilized a therapy dog for adults in a stress management group. Third, Hanselman (2001) used a therapy dog in an

anger management group with adolescents. He found that the dog contributed to increased happiness, security, and self-worth.

Overall, these studies illustrate that therapy dogs can be used as a co-therapist in a well-researched therapy (i.e., cognitive-behavior therapy). Researchers found benefits in decreasing client anxiety while increasing their security and adherence to treatment that appear to go beyond what cognitive-behavior therapy provides alone.

Current Study

The current study looked at the efficacy of animal-assisted therapy by using a therapy dog as an adjunct to a well-established CBT program (i.e., the C.A.T. Project). To do this, two types of CBT groups were conducted using the C.A.T. Project with adolescents ages 10 to 15. One type also integrated a therapy dog into their sessions. Within each treatment group, the C.A.T. Project was administered as a group treatment with 2 to 4 students in each group, in the school setting.

Using the idea that animal-assisted therapy is able to enhance the client's experience in the therapeutic environment, it was hypothesized that adding therapy dogs to treatment would improve outcomes for the students. In fact, a meta-analysis completed by Nimer and Lundahl (2007) has shown that animal-assisted therapy has potential as an adjunct therapy. Since cognitive-behavior therapy is the frontline treatment for anxiety, adding a therapy dog to that treatment was hypothesized to provide additive benefits.

Presently, research in the field of animal-assisted therapy is limited and a majority of what has been reported has been anecdotal and with small sample sizes. Controlled studies are needed in order to empirically justify or disprove the effectiveness of having a dog as a co-therapist (Nimer & Lundhal, 2007). As it stands, professionals who are using therapy animals

are doing so with little empirical evidence. Moreover, animal-assisted therapy has entered the realm of schools (Anderson & Olson, 2006; Tissen, Hergovich, & Spiel, 2007; Zents, Fisk, & Lauback, 2016). Since more students are exposed to animal-assisted therapy, it is crucial that empirical data is obtained to determine the impact an animal has in a school.

The current study adds to the existing animal-assisted therapy and cognitive-behavior therapy literature base in several ways. First, it adds to the literature base for animal-assisted therapy, which is currently lacking empirical evidence. Considering the substantial physical and psychological benefits recorded by those utilizing therapy dogs in their sessions, particularly in relation to anxiety, as well as the potential positive impact AAT may have on the therapeutic alliance, AAT is worth researching.

Second, it combines the two therapies, conceptualizing animal-assisted therapy as an adjunct to cognitive-behavior therapy. AAT is not always used as an adjunct therapy, although this is recommended by Nimer and Lundhal (2007), and therefore, does not have much empirical evidence yet. Since CBT is already a well-supported treatment for anxiety, it was expected that AAT would enhance this treatment.

Third, the study is designed with a rigorous methodology. By using a comparison group and standardized treatment, the methodological rigor is where it needs to be in order to move the field of AAT forward. Currently, weak methodological design in the literature of AAT is preventing it from gaining the traction it needs to move forward as a field (Herzog, 2015; Kamioka et al., 2014).

Fourth, it tests the effectiveness of a CBT program within the context of a school, thus tapping into feasibility for an AAT and CBT program in schools. Recently, research sought to overcome barriers (e.g., transportability and feasibility) that prevent CBT programs from being

used in schools (Mychailszyn et al., 2011). Some researchers have hypothesized that the reason more information isn't available for therapy dogs in schools is that therapy dogs are primarily used by practitioners and not researchers (Black, Chur-Hansen, & Winefield, 2011; Borrego et. al., 2014).

This study examined group differences between using manualized group therapy CBT treatment (i.e., the C.A.T. Project) in schools with and without a therapy dog. It was hypothesized that: (1) combined AAT and CBT will improve self-reports of anxiety symptoms at a greater rate than CBT alone, and (2) combined AAT and CBT will have greater ratings of therapeutic alliance as reported by the students.

Chapter 2

Literature Review

In this section, current trends in anxiety, particularly for adolescents, will be discussed. Additionally, treatments will be briefly reviewed, with an in-depth focus on Cognitive Behavioral Therapy (CBT). The Coping Cat and C.A.T. Project are described as two well-researched CBT treatments for anxiety. In the second half of this review, animal-assisted therapy will be described and the current status of research will be provided. Finally, some information on combining animal-assisted therapy with cognitive behavioral therapy will be discussed.

It is established in the literature that anxiety is prominent during adolescence (Brumariu, Obsuth, & Lyons-Ruth, 2013; McCarthy, 2007; World Health Organization, 2012a). Only 20% of the population experiences no anxiety symptoms, whereas 60% of adolescents experience occasional distress and 20% experience pathological distress (Weiner, 1992). With adolescents experiencing high levels of anxiety, it is important to be knowledgeable of its etiology and treatments.

Typical Adolescent Anxiety

According to the World Health Organization (2016), adolescence describes the period between childhood and adulthood, including ages 10 to 19. Adolescence is “marked by a struggle towards independence, autonomy, and maturity” (Stebnicki, 2007, p. 61). Furthermore, it involves several years of instability and emotional lability (Weiner, 1992). For these reasons, it is important to understand what is typical and atypical development. In many instances, turmoil in adolescence is not indicative of long-term psychopathology. Therefore, clinicians

who work with adolescents must navigate changing behavior and mood states that are new to the individual, but not necessarily pathological (Hsu & Hersen, 1989).

According to McCarthy (2007), there are biological reasons leading to increased susceptibility to mental health issues, including anxiety, in adolescence. Puberty causes changes in neurosteroids. These changes cause more resistance to input and excite the hippocampal pyramidal neurons. The hippocampal region is responsible for emotional regulation. Due to these changes, adolescents may experience bouts of anxiety, despite never having this severity of worry or fear in the past. Thus, it is possible that the changes and transitions during the adolescent years put stress on the psyche (Spear, 2000).

Stress is present within a number of typical adolescents (McCarthy, 2007). A survey of 1,368 parents revealed approximately one third of their adolescent children experience some level of stress (National Public Radio, Robert Wood Johnson Foundation, and Harvard School of Public Health, 2013). Abe and Suzuki (1986) indicated that fear of blushing or being looked at peaked around ages 14 and 15. Research also shows that anxiety and social phobia symptoms are most prevalent around this age (Abe & Suzuki, 1986; Nelemans et al., 2014). Westenberg, Drewes, Goedhart, Siebelink, and Treffers (2004) found it was typical for adolescents to report feeling fear or anxiety, particularly in the area of social evaluation. As children become adolescents, they tend to worry less about punishment and become more concerned with social evaluation and academic achievement. Westenberg et al. (2004) also found that adolescents who were more mature, as reported by a sense of ego, not age, would report feeling more anxiety about social evaluation. It was hypothesized that this was due to the higher expectations for adolescents than children. For example, adolescents experience pressure to score well on exams that have implications for college or their career.

Moreover, research has demonstrated the effect of the school environment on an adolescent's mental well-being. One study found 33% of all 11-year-old students felt pressured by schoolwork; this number increased to 42% for males and 54% for females once they reach 15 years of age (World Health Organization, 2012a). This study also found schools tended to decrease academic and social support for students as they grew older; however, this contributed to feeling more pressure to improve performance at a time when students had less support from peers and teachers. Current practices in schools to improve test scores also contribute to increased stress in students (von der Embse & Witmer, 2014). Taken together, adolescents are experiencing increased demands and fewer academic and social supports during the school day, which exacerbates stress.

Nelemans et al. (2013) reported that this expression of anxiety is related to normative development, and after puberty, many adolescents will no longer experience these intense emotions. However, for approximately 6 to 30% of adolescents, anxiety can continue to greatly impact their lives far beyond puberty.

Pathological Adolescent Anxiety

Approximately one quarter of adolescents who have a mental illness are diagnosed with some form of anxiety disorder (National Institute of Mental Health, 2015). The DSM-5 describes the broad term of anxiety disorder as being marked by excessive fear (American Psychiatric Association, 2013). Unlike typical fear that causes a flight or fight response, individuals with an anxiety disorder experience heightened fear in anticipation of a situation that can be real or imagined and lead to avoidance of the event. Additionally, it is difficult for the person to control their worry or fear. Psychological symptoms include restlessness, difficulty concentrating, and irritability. Furthermore, anxiety disorders are often accompanied by

physiological symptoms such as muscle tension, sleep disturbance, and panic attacks. A panic attack can be described as a quick surge of intense fear that may include symptoms such as heart pounding, sweating, chest pain, numbness, and fear of losing control or dying.

Types of Anxiety and Trajectory. Under the general term of anxiety disorder, specific types of anxiety disorders may include specific phobia, separation anxiety disorder, selective mutism, social anxiety disorder, agoraphobia, panic disorder, and generalized anxiety disorder (American Psychiatric Association, 2013). Other researchers have also included obsessive-compulsive disorder, post-traumatic stress disorder, and school anxiety because they tend to include symptoms similar to anxiety (National Institute of Mental Health, 2015; Nelemans et al., 2014). Each of these types of anxiety has different trajectories across adolescence (Nelemans et al., 2014).

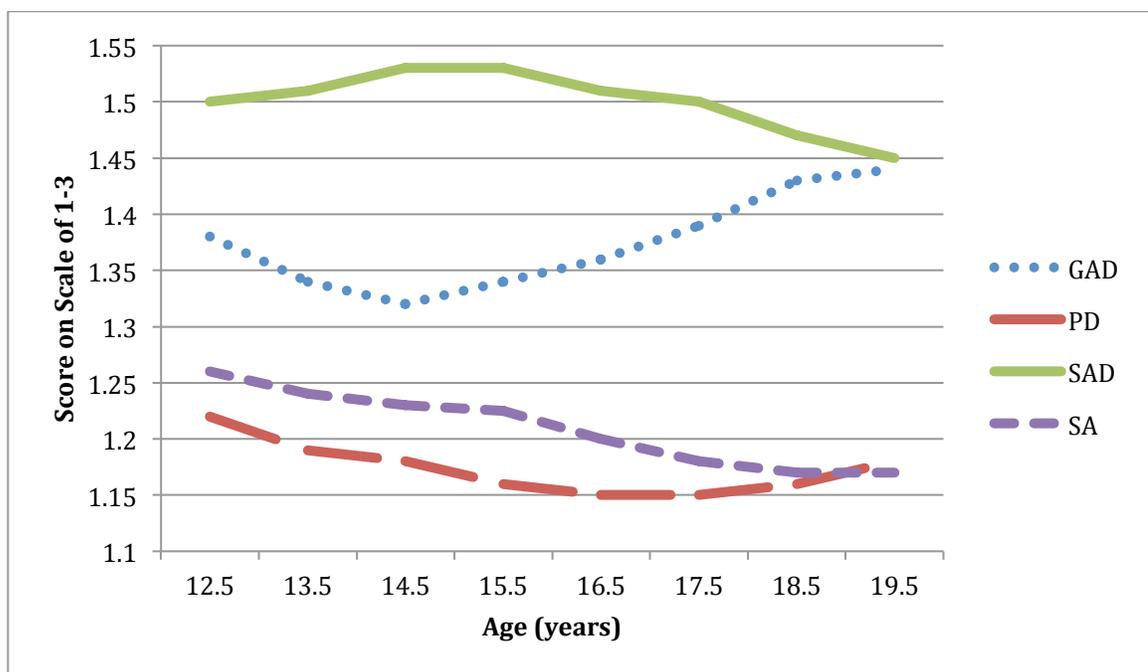
Hale, Raaijmakers, Muris, van Hoof, and Meeus (2008) reported that in the general population, there is a broad decrease in anxiety symptoms as boys and girls transition from early to middle adolescence. Early adolescence was defined as ages 10 to 15 and middle adolescence was defined as ages 16 to 18. However, once they reach middle adolescence, boys tend to show a decrease in generalized anxiety, whereas girls show an increase. Furthermore, girls tend to display higher and more stable levels of anxiety than boys. Other findings report a sharp increase in generalized anxiety disorder for both boys and girls in middle adolescence onward; this may be, in part, due to stressful transitions that occur during this time (e.g., going from primary to secondary school; Nelemans et al., 2014).

A longitudinal study (Essau, Conradt, & Petermann, 2002) of adolescents with anxiety disorders revealed a low natural reoccurrence rate for anxiety symptoms. Without intervention, after 15 months, only 22.6% of the individuals in the study continued to meet criteria for an

anxiety disorder. However, over half of those who originally met criteria for an anxiety disorder actually met criteria for a different disorder (most often, somatoform disorder) even though they no longer displayed enough criteria for an anxiety disorder.

For panic disorder, separation anxiety disorder, and school anxiety, researchers have found a slight increase in the number of anxiety symptoms from early to mid-adolescence (Hale et al., 2008). Specifically, panic disorder is highest around ages 12 and 13, separation anxiety disorder typically decreases after age 14, and school anxiety is stable across adolescence (Nelemans et al., 2014). These trajectories are displayed in Figure 1.

Figure 1. *Trajectories of Anxiety Disorders Across Adolescence*



Note: Information was condensed from figure 1 in Nelemans et al. (2013).

The y-axis depicts the mean level of anxiety reported on a scale of 1-3 using the Screen for Child Anxiety Related Emotional Disorders (SCARED). GAD = generalized anxiety disorder, PD = panic disorder, SAD = social anxiety disorder, and SA = school anxiety.

The World Health Organization (2012a) cites a number of risk factors that could add to feelings of anxiety during adolescence. First, low economic status is a risk factor related to

increased stress and lack of resources. Second, chronic health problems can exacerbate worrying for adolescents as they become concerned about their future. A third risk factor is exposure to maltreatment or neglect as a child. This loss of support and feeling of abandonment can be devastating as the child gets older and is able to fully understanding their situation. Fourth, being from a minority group (e.g., sexual orientation) can lead to difficulties for adolescents. Teenagers are particularly vulnerable to judgment from peers compared to other age groups. If peer victimization does happen, this could further exacerbate mental illness. Other risk factors include exposure to substance use, involvement with the juvenile justice system, and experiencing a natural disaster. Additionally, there are several risk factors that are connected with chronic anxiety issues (i.e., lasting longer than one year). These include being of an older age within adolescence, having more negative life events, and the presence of somatoform disorder (Essau et al., 2002). Furthermore, attachment issues and trouble with peers are also common for adolescents with anxiety disorders (Brumariu et al., 2013).

Outcomes of Anxiety. Having anxiety can impact an individual's functioning at home and at work or school. Since the worrying takes energy, it can affect how quickly and efficiently one can get things done (American Psychiatric Association, 2013). Additionally, it can negatively impact one's concentration and sleep, which leads to fatigue. There is also evidence for the negative impact of adolescents' long-term anxiety on friendships and romantic relationships (Hebert et al., 2013), alcohol use and abuse (Asselmann et al., 2014; Wolitzky-Taylor et al., 2015), substance dependence (Lopez et al., 2005), nicotine dependence (Sonntag et al., 2000), chronic obstructive pulmonary disease (Gudmundsson et al., 2006), and heart disease (Berecki-Gisolf et al., 2012).

Anxiety has also been documented to impact academic performance. Researchers have found a moderate level of anxiety to be related to higher academic performance (DiLalla, Marcus, & Wright-Phillips, 2004; Duchesne, Vitaro, Larose, & Tremblay, 2008). In this sense, some anxiety is good and acts as motivation to accomplish tasks. A large survey of 700 adolescents revealed a curvilinear relationship between anxiety and academic performance (Sharma, 1970). Those with very low or very high anxiety had lower academic performance, while those with moderate anxiety had higher academic performance. Similarly, a meta-analysis completed by Seipp in 1991 found a correlation between high anxiety and poor academic performance in youth. Overall findings were that if a typical student scored in the 50th percentile on an academic achievement measure, then those with high anxiety would average in the 33rd percentile; this is a half standard deviation difference. In conclusion, a moderate level of anxiety increases motivation, without being severe enough to hinder academic performance; however, high levels of anxiety can negatively impact academic performance.

Furthermore, Vaillancourt, Brittain, McDougall, and Duku (2013) studied the longitudinal trajectories of student outcomes in schools. Anxiety is represented in this study as part of an internalizing problem, or a problem that the person experiences inwardly. They found that in fifth grade, internalizing problems (i.e., anger, anxiety, depression) were associated with decreased academic achievement. Furthermore, internalizing problems predicted increased peer victimization in 6th and 7th grade and increased absences in 8th grade. These examples show the negative impact of anxiety on everyday life for adolescents.

Individuals who had anxiety as an adolescent were found to continue to have similar symptoms into adulthood. Using a longitudinal design, Woodward and Fergusson (2001) studied outcomes of adolescent anxiety while controlling for confounding variables (e.g., mother's age

and education at respondent's birth, parental separation, physical punishment, sexual abuse, and attachment styles). They found that significant associations were evident between the severity of the anxiety disorder in adolescence and later risk of anxiety disorder, depression, and illicit drug dependence. Furthermore, the researchers found anxious adolescents were 1.4 times less likely to attend further vocational training after high school and 2.5 times less likely to attend a university than their nonanxious adolescent counterparts.

Of those who are diagnosed with a mental illness in the U.S., only 50% go on to obtain treatment (National Institute of Mental Health, 2015). There are several reasons for this. First, there may be a lack of resources (World Health Organization, 2012a). This may be particularly true if students are from low socioeconomic status or of a culture that does not value mental health as a priority. Second, even in children and adolescents, there is stigma around seeking mental health treatment. Third, it can be difficult finding transportation to a mental health facility; this is especially problematic for rural populations that need to travel long distances to receive mental health treatment. Fourth, there may be an inability to communicate in the client's native language. Again, this is particularly an issue for low-income areas. Fifth, there is a general lack of knowledge about the advancements of mental health diagnosis and treatment (World Health Organization, 2012b). These barriers to treatment indicate the importance of the school's role in extending mental health services. After all, mental health issues are impacting a student's ability to perform, and public schools have an obligation to help provide the tools for students' success.

Responsibility of Schools as a Gatekeeper of Access to Mental Health. Schools are where students spend a majority of their time. As a result, school staff

are in a unique position to identify issues going on with students and offer access to resources (Mychailszyn et al., 2011). Additionally, schools might be one of the first places any impairment in children's functioning appears. When students get to school for the first time, they are being asked to follow through on tasks, socialize with peers, and have some independence.

Furthermore, schools offer a learning base for more than just academics. They help teach students about physical and mental health, safety, civic engagement, and social development (Marin & Brown, 2008). Research supports the interplay between each of these domains, rather than explicit instruction in any one area. This means that students are often learning about these topics inadvertently. For instance, a school that implements character education teaches students to value respect for others (e.g., social development). Another example is when students are asked to participate in voting on something for their school, they are being taught civil engagement.

There are a number of variables that hinder a school's ability to provide mental health services to students. Suldo, Friedrich, and Michalowski (2010) found these hindrances include a lack of support from building administration, insufficient time, and lack of space. They also reported that in order to deliver services efficiently, counseling services are often provided to groups of students rather than individuals.

In short, schools have the opportunity to reach a large number of students and improve their mental health. This is particularly important considering that about a quarter of adolescents suffer from anxiety. With the prevalence being so high, it is important to be knowledgeable of treatment options available.

Treatment for Anxiety Disorders in Adolescents

The relationship between the client and therapist is thought to be the cornerstone of therapy. Research consistently demonstrates the importance of the therapeutic relationship to positive psychological outcomes (e.g., Castonguay et al., 2010; Marker, Comer, Abramova, & Kendall, 2013; Parloff, 1961). Data supporting these findings are rather stable. A meta-analysis analyzing the effects of the therapeutic alliance and possible mediating variables determined that therapeutic alliance tends to have moderate effect sizes on improving treatment regardless of the type of alliance outcome measure used, type of rater, timing of alliance assessment, or type of treatment provided (Martin, Garske, & Davis, 2000). Along with this, the client's perception of the therapist's understanding and acceptance predicts greater therapeutic alliance (Cooley & Lajoy, 1980). Further, recent research demonstrates some evidence of a reciprocal effect between symptom improvement and greater therapeutic alliance (Cummings et al., 2013; Falkenström, Granström, & Holmqvist, 2013). In other words, it is possible that improvements in symptoms, rather than the therapeutic relationship could be contributing to the higher therapeutic alliance and symptom improvement scores. Nevertheless, it is important to keep the therapeutic relationship in mind when working with any client, including adolescents.

Anxiety symptoms can often be connected to difficulties with social relationships, coping with stress, and social problem solving. Thus, the National Association of School Psychologists (NASP)'s *Best Practices in School Psychology* (Huberty, 2014) suggests several treatment approaches one might use to treat anxiety. For instance, treatment might focus on social skills training, which involves working in groups to improve perspective taking and practice new skills. Additionally, exposure activities are designed to gradually expose individuals to anxiety-provoking situations in a hierarchical way (i.e., starting with the least stress-inducing activity and

moving to the most stressful). Another strategy recommended was to teach the five steps of problem solving: (1) stop and think, (2) identify goals, (3) brainstorm solutions, (4) make a decision, and (5) enact the solution.

NASP's *Best Practices in School Psychology* also suggests following a cognitive-behavioral orientation to treatment due to its reported effectiveness for treating anxiety and the focus on cognitive, behavioral, and psychological symptoms prevalent in anxiety. Also coinciding with Best Practices, a majority of CBT treatments utilize manuals that focus on psychoeducation (e.g., learning to recognize thoughts, feelings, and behaviors) in addition to exposure activities. Moreover, these can be done in groups, which helps fulfill the need to strengthen social skills. Building skills can be particularly important for those with true pathological anxiety because anxiety tends to be chronic and repetitive (Adams, 1979); thus, having the coping skills to effectively deal with anxiety when it arises is crucial.

Prior to the development of cognitive-behavior therapy, treatment for childhood and adolescent anxiety focused on play therapy, using psychoanalytic techniques similar to Anna Freud (Adams, 1979), and behavior therapy, which usually included exposure techniques with response prevention (Weiner, 1992). When children and adolescents were prescribed medication, it was often either a mild tranquilizer or Benadryl (Adams, 1979). Likely out of the success of behavior therapy, cognitive-behavior therapy soon became mainstream treatment for anxiety.

Cognitive-Behavior Therapy. The Beck Institute for Cognitive Behavior Therapy (n.d.) defines CBT as “a solution focused approach to treatment, oriented toward solving problems and learning skills.” The therapist and client work collaboratively as a team to address behaviors, emotions, and thoughts that are perpetuating the psychiatric disorder. CBT has been used across

all ages, with a variety of mental disorders and medical disorders (e.g., irritable bowel syndrome, hypertension, and migraine). The efficacy of CBT on treating anxiety disorders over the past two decades has gained overwhelming support (e.g., Heuzenroeder et al., 2004; Hofmann et al., 2014; Ishikawa et al., 2007). The following synopses highlight the information known on CBT for anxiety.

Studies on adults. According to a meta-analysis by Watts, Turnell, Kladnitski, Newby, and Andrews (2015), CBT is better than “treatment-as-usual” with average to moderate effect sizes in anxiety symptom reduction (p. 152). Treatment-as-usual was defined differently depending on the study. These treatments, when defined, indicated treatment through a general physician, psychotropic medications, case managers, psychotherapy (without cognitive-behavioral components), or minimal support such as access to a helpline. Likewise, Hofmann, Asnaani, Vonk, Sawyer, and Fang (2014) found CBT is more effective than placebos, no treatment, or medication at reducing anxiety.

The effects of CBT have extended beyond symptom reduction. A meta-analysis by researchers Hofmann et al. (2014) looked at the reported quality of life for individuals who have undergone CBT. The researchers defined quality of life as referring to one’s subjective experience and overall well-being. They acknowledged that this might include physical and mental health, social functioning, and work activities. The meta-analysis included 44 randomized-controlled studies conducted with adults who received CBT and included at least one quality of life measure. The study concluded CBT has moderate positive effects on physical (e.g., energy, sleep) and psychological (e.g., emotion, self-esteem, cognition) domains as a part of quality of life. Furthermore, these effect sizes increased with duration of treatment. In short,

CBT is at least moderately effective in improving other areas of life in addition to reducing anxiety symptoms.

Heuzenroeder and colleagues (2004) evaluated the cost-effectiveness of treating adults with anxiety disorders using CBT and/or medication from an economic and medical perspective. In doing so, they calculated disability-adjusted life years (DALYs), which took into account equity, evidence-base, feasibility, and acceptability of stakeholders. They found that CBT conducted by a psychologist on a public salary was the most cost effective treatment, saving around \$6,900.00 per year. Following this was tricyclic antidepressant medication, then CBT conducted by a private psychologist, then selective serotonin reuptake inhibitors (SSRIs). However, the researchers noted some barriers to CBT treatment with a public psychologist might be inequality among access to lower socioeconomic groups and rural locations.

Studies on children and adolescents. The last section cited an abundance of studies supporting the use of CBT with anxious adults. The research for children and adolescents is less, but still substantial. When reported, children and adolescents are often combined despite their differing presentations of symptoms and needs.

In a review of meta-analyses, Hoffman, Asnaani, and colleagues (2014) agreed with Hoffman and Smit (2008) that, in general, CBT is a reliable first-line treatment for anxiety in adults and youth. In a specific review of meta-analyses of youth, these researchers concluded CBT was found to have effect sizes in the large range. They also found that CBT effectiveness was equal to that of interpersonal and family systems therapies. Further, the benefits of CBT exceeded those of medication due to lower costs and fewer side effects. This was also supported by Heuzenroeder et al. (2004) and Hofmann et al. (2014).

Additionally, a meta-analysis by Bennett and colleagues (2013) investigated age differences among children and adolescents undergoing CBT. After searching for randomized controlled trials using participants aged 6 to 19, the researchers found 16 studies that met their inclusion criteria. In the analysis, they found that there were generally no differences between outcomes for children and adolescents. However, they noted that this might be more attributed to the expertise and skill of the therapist working with adolescents than to the content within the actual CBT manual itself.

Additionally, James, Soler, and Weatherall (2007) reported in a meta-analysis that approximately 56% of children and adolescents experienced anxiety symptom reduction with CBT. This is compared to the 28% natural improvement rate found in waitlist control groups. Furthermore, Chu and Harrison's (2007) meta-analysis provided effect sizes for specific symptom improvement in youth participating in CBT. They found with a large effect size of 1.02; 84% of youth receiving CBT performed better on behavioral indicators than their waitlist controls. Also, moderate effect sizes were present for physiological, cognitive, and coping outcomes.

In addition, a meta-analysis by Ishikawa et al. (2007) supported earlier findings of moderate to large effect sizes and added that moderate effect sizes continue to be evident in youth two years after CBT treatment. Moreover, effect sizes were similar regardless of the length of treatment (i.e., more or less than 10 sessions). Notably, the researchers found parents consistently rated their child's improvement in the large effect size range, whereas youth often rated themselves in the moderate effect size range. This was a clinically significant difference. In other words, self and parent-reports tend to rate the effects of CBT differently.

These studies are some of the most recent findings (i.e., within the last 10 years) and just a sampling of the research available that supports the use of cognitive-behavior therapy to treat anxiety disorders. In short, research has demonstrated at least moderate effect sizes in anxiety symptom reduction for children and adolescents. As mentioned, there is evidence to support that CBT is a cost-effective treatment that can have long-lasting effects that extend to improving quality of life. Two of the most well-researched CBT treatment manuals for youth with anxiety are Coping Cat and the C.A.T. Project.

Coping Cat and the C.A.T. Project. NASP's *Best Practices in School Psychology* (Huberty, 2014) recommends manualized treatments, specifically including the Coping Cat by Kendall and Hedtke (2006). According to Kendall and Hedtke (2006), the Coping Cat program is a treatment for anxiety disorders (e.g., generalized anxiety disorder, social phobia, and separation anxiety disorder) that can be used with children ages 7 through 13. This is a 16-session, one-hour per week, manualized treatment that can be used with individuals or groups. The first eight sessions focus on teaching new skills, while the last eight sessions provide time for the client to practice learned skills through exposure tasks. Clients are taught to recognize signs of anxious arousal as a cue to utilize their anxiety management strategies. The program uses cognitive-behavioral techniques such as modeling, imaginal and in vivo exposure, role-playing, relaxation training, and reinforcement.

The Coping Cat is an evidenced-based practice, meaning it is well supported by research (California Evidence-Based Clearinghouse for Child Welfare, 2015). Lenz (2015) conducted a meta-analysis on the efficacy of manualized CBT programs, including Coping Cat, Coping Koala, and Coping Bear, in decreasing anxiety. Coping Koala and Coping Bear are adaptations of the Coping Cat that account for cultural differences in Australia and Canada, respectively.

The meta-analysis included 19 randomized controlled studies with 1,358 participants total. The researchers found that when compared to no treatment control groups, clients receiving CBT demonstrated improvements in anxiety with large effect sizes. When compared to viable alternative treatment conditions (e.g., parent training, psychoeducation, other CBT approaches), those using the Coping Cat, Coping Koala, or Coping Bear continued to express small effect sizes beyond what other treatments could provide.

Child/Adolescent Anxiety Multimodal Study (CAMS). The Child/Adolescent Anxiety Multimodal Study (CAMS), a large randomized controlled study, included 488 participants between the ages of 7 and 17 who either received anxiety treatment in the form of cognitive behavioral therapy (via the Coping Cat for children or C.A.T. Project for anxious adolescents), medication (i.e., Sertraline), their combination, or medication management using a placebo. A number of findings regarding predictors and moderators of effective treatment are discussed below.

Compton and colleagues' (2014) primary conclusion was that combined CBT and medication produced the best outcome in symptom reduction. Within the different subcategories of anxiety, there was some variation, however. For example, participants with generalized anxiety disorder tended to make better gains using CBT, whereas those with separation anxiety tended to do better with medication. Significant moderators of treatment that led to better outcomes included having a lower baseline level of symptoms and having less caregiver strain.

Cummings et al. (2013) investigated the relationship between the therapeutic relationship and each of the treatment types. Findings indicated that the therapeutic relationship (as assessed by the client's perception) only significantly impacted the outcomes of the CBT group (not the medication groups). Additionally, they found a trend wherein therapeutic alliance was weaker

during the first half of treatment, and strengthened around the eighth session. This coincided with the start of exposure tasks. The researchers acknowledged that other researchers have reported this shift in therapeutic alliance around the start of exposure tasks in CBT.

As described by Crawley and colleagues (2014), of the 488 participants in the CAMS, 95% reported somatic symptoms (e.g., headaches, sleeping problems, stomach aches, nightmares, fatigue). The researchers found that regardless of the treatment condition to which participants were assigned (even the placebo), they reported significant improvement in somatic symptoms. It was hypothesized that rather than this being due to CBT, it may actually be a result of maturation, passage of time, or being well rested.

At least two follow-up studies were conducted on the CAMS. After 12 weeks, Ginsburg et al. (2011) found that those in the combined group (i.e., CBT and medication) had the most participants who fell into their remission category (between 46% and 64%). Remission was defined as no longer meeting criteria for an anxiety disorder according to an outside diagnostician non-affiliated with the CAMS. Those in either the medication or CBT only groups were similar, with 34 to 46% and 20 to 46% remission, respectively. The placebo group had between 15 and 27% in remission. Finally, Piacentini and colleagues (2014) reported that after 24 and 36 weeks, results from the study were maintained in 80% of the sample population. The combined group continued to have the best outcomes, while medication and CBT only groups were equally effective over the placebo.

The Coping Cat has also been used in Brazil with some efficacy (de Souza et al., 2013). A group of 20 participants between 10 and 13 years of age completed the Coping Cat program. Results indicated that the youth saw a decrease in anxiety and externalizing symptoms. However, depression symptoms and overall quality of life were not significantly impacted.

Flexibility in the Coping Cat and C.A.T. Project. Part of what makes Coping Cat successful is that the authors have incorporated an understanding of the need for flexibility and clinical judgment within this standardized treatment. In addition to describing ways to be flexible within the manual, there are a few articles that further discuss how to adapt the Coping Cat for one's population (see Beidas et al., 2011 and Hamilton, Kendall, Gosch, Furr, & Sood, 2008). One example of how Coping Cat can be flexible is in building rapport. The manual suggests playing a game wherein the child and therapist each answer questions about themselves and have to remember each other's answers (Kendall & Hedtke, 2006). In order to be flexible, the therapist might select different questions, allow a parent to come into session to help the child answer the questions, or select a different rapport-building game. A second example of flexibility in Coping Cat occurs at the end of the session, when the child is encouraged to take 5 to 10 minutes to play or engage in a fun activity. While the manual offers some suggestions for this, it is up to the therapist (and the child) to decide what to do for fun.

The makers of Coping Cat continue to balance evidenced-based support with flexibility. In recognizing the need to shorten sessions for feasibility of the program, the researchers have worked to create a Brief Cognitive Behavioral Therapy (BCBT) treatment using the Coping Cat (Beidas et al., 2013). Rather than 16 sessions, the authors have found some support that treatment is effective with only 8 sessions. In the condensed version, they eliminated two parent-only meetings and moved them to sessions following the child's session, removed the muscle relaxation exercises, and shortened the amount of exposures they did in session (instead relying on more outside-of-session work). Preliminary research does support the continued efficacy of the brief version of Coping Cat in decreasing anxiety symptoms, which has been demonstrated to last more than a year later. However, the authors caution that the shortened

number of sessions could potentially impact therapeutic alliance (although this was not measured in their study). By reducing the Coping Cat to fewer sessions, the authors are making the program more accessible and feasible for schools (Mychailszyn et al., 2011).

Another major adjustment to the Coping Cat occurred when authors wanted the program to reflect the developmental level and cognitive maturity of adolescents (Kendall et al., 2002). Additionally, it was understood that adolescents often have different fears than children (e.g., shift to worrying about interpersonal relations and academics). As a result, the C.A.T. Project was developed. This 16-session program is based on the Coping Cat; however, activities are adjusted to fit with adolescents ages 14 to 17. Similar to the Coping Cat, the first eight sessions are focused on psychoeducation and identifying anxiety, while the latter eight sessions involve exposure exercises. Different from the Coping Cat, the C.A.T. Project does not yet have a therapist treatment manual for use with groups. Thus, the C.A.T. Project is written as an individually-administered treatment. Despite this, evidence for support of the Coping Cat being effectively used in group treatment (e.g., de Souza et al., 2013) gives evidence to support that the C.A.T. Project will also be effective as a group treatment. The workbook for individually- and group-administered treatment of the Coping Cat is the same; thus, it is expected that the C.A.T. Project would also be the same. The current study sought to implement the C.A.T. Project as a group treatment in order to make this program feasible for a school-based therapy.

Furthermore, the authors continue to advocate for “flexibility within fidelity” with use of the C.A.T. Project (Kendall et al., 2002, p. 2). Evidence for the efficacy of the C.A.T. project is relatively limited, with the CAMS study being the only known randomized controlled trial using the C.A.T. Project. Nevertheless, the California Evidenced-Based Clearinghouse for Child Welfare (2015) rated the C.A.T. Project as having “promising research evidence.”

In conclusion, the Coping Cat and the C.A.T. Project are two strong, evidenced-based programs that utilize CBT to treat anxiety disorders in youth. These programs are appealing because they are manualized, but also allow for flexibility and clinical judgment. Additionally, the authors of these programs are regularly researching and updating the manuals as well as offering guidance as it becomes necessary.

Summary and Evaluation of Cognitive Behavioral Therapy

Cognitive behavioral therapy is the most studied psychological treatment and recommended as first-line treatment for anxiety (Bolognesi, Baldwin, & Ruini, 2014). A number of meta-analyses and randomized controlled studies help build support for CBT with adults and youth. The Coping Cat and C.A.T. Project are two examples of evidenced-based CBT programs for children and adolescents, respectively.

Although well supported by research, CBT still has room for improvement. Often underplayed in CBT is the importance of the therapeutic alliance (Castonguay et al., 2010). CBT is focused on learning and operant conditioning, which does not explicitly focus on the relationship. For those who practice CBT, the therapeutic alliance is thought of as a factor of treatment. Rapport building is scheduled to occur in the first session or for a small time in the beginning of all sessions. It is not a focus of treatment unless the relationship between the therapist and client is hindering client progress. Furthermore, the relationship between client and therapist in CBT is collaborative, thus adding to the support that rapport building is continuous and it may be unnecessary to have scheduled time for rapport building. In other words, the therapeutic alliance is thought to be secondary, whereas most other therapies view alliance as the primary factor for therapeutic change. Some CBT therapists “have endorsed a view of the alliance as a *consequence* of good therapeutic technique” (Castonguay et al., 2010, p. 156).

However, as the CAMS study showed, therapeutic alliance often is not strengthened until half way through treatment, once exposure tasks begin. Across most therapeutic orientations, research evidence for adolescents strongly supports that the sooner rapport is built, the better the outcomes are for the client (Fernandez, Krause, & Pérez, 2016; Owen, Miller, Seidel, & Chow, 2016; Zandberg, Skriner, & Chu, 2015). What if we could improve symptom outcomes by addressing the need to increase therapeutic alliance early on? In order to promote a positive therapeutic alliance, a therapy dog is a potential tool to augment CBT.

Introduction to Animal-Assisted Therapy: A Dog as a Co-Therapist

Boris Levinson, a pioneer in the field of animal-assisted therapy, found firsthand the benefits of having his therapy dog, Jingles, in the therapy room with him (Rossetti & King, 2010). Levinson (1970) observed that having a dog that the client could physically touch allowed the client to feel safe and comforted in the therapy room. Furthermore, some researchers believe it is this very tactile reason why animal-assisted therapy has been reported to be effective in the therapeutic setting (Halm, 2008). Those who engage in petting the therapy animal are said to experience a “tactile process whereby unconditional attachment bonds form between animals and humans, inducing relaxation by reducing cardiovascular reactivity to stress” (Halm, 2008, p. 373). Moreover, it has been said that physical touch is associated with healing (Sobo, Eng, & Kassity-Krich, 2006).

Levinson (1970) also introduced the idea that therapy dogs have an innate ability to be nonjudgmental. In a world where children and adolescents learn that humans judge them, the dog can provide a nonjudgmental ear to the client (Friesen, 2010). Not only is this unconditional positive regard crucial in helping the client to get better (Sobo et al., 2006), but these characteristics are more easily attributable to the therapist who the child observes caring for and

having a good relationship with the dog (Levinson, 1970). Along with this, dogs cannot place excessive demands on the client like humans can. Additionally, because the dog is also seen as a vulnerable population, the client may find more comfort in relating with them (Levinson, 1970).

Another reason Levinson (1970) encouraged the use of therapy dogs is that the client would be able to experience success and reward through handling the dog. The client may experience their own social acceptance from the dog, success in teaching the dog commands, and reward just for being accepted by the dog. For example, a therapy dog might greet the client with a wagging tail, indicating to the client that they are accepted and wanted in the therapy room.

Defining Animals in Therapy

There are varying levels of rights for animals who work with humans. At the top level is a service dog. These are considered working dogs whose job is to aid a person with a physical or psychological disability (e.g., blindness). Service dogs have more recently entered into the mental health realm as they are able to help alert people when they are about to have a panic attack, provide tactile stimulation to help calm them, check for safety, provide a buffer between other people, interrupt destructive behaviors, and remind people to take medication (Fine, 2015). Service dogs are allowed in any establishment regardless of their pet policy and are protected by the Americans with Disability Act (Pet Partners, n.d.).

Next, emotional support animals are recommended by a licensed mental health professional to a person with a mental disability as the presence of the animal may substantially improve one's functioning in a major life activity. These animals are not permitted in establishments not allowing dogs, with the exception of airplanes and housing. Emotional support animals are covered by the Fair Housing Amendments Act (Pet Partners, n.d.).

Finally, a therapy animal is a social animal whose purpose is to provide comfort to people. They have no special rights of access (Pet Partners, n.d.). In order for a therapy animal to enter a facility, such as a hospital or school, permission must be obtained. To better understand animal-assisted therapy, the following definitions have been provided.

Animal-Assisted Intervention. Animal-assisted intervention (AAI) is best thought of as an umbrella term for therapeutic activities involving an animal (Fine, 2015). All AAIs use human-animal teams to provide goal-directed and structured interventions that provide therapeutic gain to clients. Under the general term of AAI are animal-assisted activity, animal-assisted education, and animal-assisted therapy (International Association of Human-Animal Interaction Organizations, 2013).

Animal-assisted activities. The least formal of the animal-assisted interventions, animal-assisted activities (AAA) is designed to provide motivation and recreational benefits in order to improve one's quality of life (Pet Partners, n.d.). AAA might also be used to provide education or therapeutic benefit (Friedmann & Son, 2009). Similar to animal-assisted therapy (AAT) and animal-assisted education (AAE), animals need to be screened and trained to work with others. However, the activities do not need to be led by a credentialed therapist (Chandler, 2012) or an education professional. The dog handler must instead go through introductory training for working with animals in this context and work directly with a healthcare, educator, or human service provider in order to provide documentable goals (International Association of Human-Animal Interaction Organizations, 2013).

Goals typically focus on facilitating social interaction (Chandler, 2012) and improving mood. They are most often used in institutionalized settings. The benefits of AAA are similar to those of owning a pet (e.g., improved mood and decreased stress; Friedmann & Son, 2009).

Examples of AAA include a dog visiting with patients and engaging them in friendly petting and play (Chandler, 2012) or a dog visiting a residential facility to decrease agitation among patients with Alzheimer's disorder (Friedmann & Son, 2009). Another example is bringing a dog to a natural disaster site as a crisis response focused on providing comfort (International Association of Human-Animal Interaction Organizations, 2013). Of importance, one study has demonstrated AAA is more effective with individuals than with groups (Friedmann & Son, 2009).

Animal-assisted education. Animal-assisted education (AAE), sometimes called animal-assisted pedagogy, is another goal-oriented and structured intervention. Those who provide AAE are education professionals with degrees in general education or special education and who have the appropriate knowledge of animals. The reason for using AAE is to improve academic goals, social skills, and cognitive functioning (International Association of Human-Animal Interaction Organizations, 2013; Pet Partners, n.d.).

One example of a general education teacher using AAE is a class lesson on responsibility and caring for pets. On the other hand, a special education teacher might use AAE when they bring a therapy dog into class as part of a dog-assisted reading program (International Association of Human-Animal Interaction Organizations, 2013). Intermountain Therapy Animals is one organization that does this through their Reading Education Assistance Dogs (R.E.A.D.) program. Dog-handler (anyone willing to volunteer) and dog (with obedience training) teams register with the R.E.A.D. program to volunteer their time in schools, hospitals, libraries, etc. working with children on developing reading skills. Children reported feeling more relaxed as they read to the dog than they would reading to a human (Shaw, 2013). This program is intended to help improve their motivation to continue to practice reading

(Intermountain Therapy Animals, n.d.). Additionally, there is research evidence to support that interacting with therapy dogs helps improve children's reading skills (e.g., le Roux, Swartz, & Swart, 2014).

Animal-assisted therapy. In a broad sense, animal-assisted therapy (AAT) involves a therapist who strategically utilizes the skills of a therapy animal (e.g., dog) to promote positive human-animal interactions and facilitate the mental and physical well-being of a client (Chandler, 2012; International Association of Human-Animal Interaction Organizations, 2013). In doing so, the therapist and therapy animal work together as a team (Pet Partners, n.d.) in a formal therapeutic process with goal-directed interventions that are documented by treatment plans and case notes (Chandler, 2012).

The therapist has appropriate credentials to provide therapy and works within their scope of practice. They will guide interactions between the therapy animal and client, as well as monitor progress (Chandler, 2012). Therapists using AAT may come from the health, education, or human service professions (International Association of Human-Animal Interaction Organizations, 2013). Furthermore, the therapy animal is trained and must be able to pass tests to meet specific criteria (Chandler, 2012). Typically, though not always, the therapy animal is the therapist's pet and accompanies them to a variety of different sites to provide goal-directed interventions to clients (Friedmann & Son, 2009).

One way to think of animal-assisted therapy is as an adjunct to an existing therapy the therapist already uses (Chandler, 2012). Therapy dogs within counseling can be used along the continuum of directive to nondirective approaches, with individuals or groups, spanning all age groups and varying disabilities. AAT can be used as a therapeutic tool or as the main underpinnings of one's practice (Chandler, 2012).

An example of AAT would be a licensed mental health counselor bringing their certified therapy dog to an inpatient clinic group for adults diagnosed with an eating disorder. The therapy dog would be a part of the treatment plan, and as part of this, they may have specific jobs. For example, this may involve sitting next to each person to allow them to pet the dog, teaching the client to give commands to the dog as part of rapport building, or allowing a client to take the dog for a walk to increase community engagement.

Evidence for the Benefit of a Dog

Dogs have long been known to have a positive effect on humans. Pet owners often feel this with their own dogs. In the past 50 years, science has begun to find support for the physical and psychological benefits of dogs. Below, research is examined about using animals in a therapeutic way. These include companion animals, as well as animals trained for animal-assisted activities, animal-assisted education, and animal-assisted therapy.

Physical Benefits. The way therapy dogs relate to physiology can be explained using the biopsychosocial model (Friedmann, Barker, & Allen, 2011). The biopsychosocial model is a framework for understanding the interplay between physical, mental, and social processes and their impact on an individual (Lindau, Laumann, Levinson, & Waite, 2003). At the center of this spherical model, individual factors are presented (e.g., age, race, gender, physiological arousal, and stress levels). Around the outer sphere, the individual appears to be impacted by a variety of environmental factors, including social support. This is the area in which animals have the opportunity to affect humans. Since stress can be measured through an individual's cortisol levels, neurohormones, heart rate, blood pressure, etc., researchers are able to take these measurements and determine how their environment is impacting them.

The following studies demonstrate the effects that dogs, as companion animals, pets, and co-therapists, have on physiological measures of stress. Of note, a majority of the research available in this area is on pets, some of which are owned by participants (Friedmann et al., 2011).

Studies measuring heart rate and blood pressure. A number of studies have shown the positive effects a dog can have on improving heart rate and blood pressure in clients. A controlled study completed by Allen et al. (2001) measured the differences in blood pressure for individuals taking hypertensive medications with or without ownership of a pet at home. They found that having a pet significantly lowered blood pressure beyond the effects of taking the hypertensive medication.

Assessing the biopsychosocial model, a few research studies have focused on comparing the social support of a human companion to that of an animal companion. Allen, Blascovich, Tomaka, and Kelsey (1991) had women complete a stress-inducing arithmetic problem with either their friend or their dog present. It was found that having their dog present during the stressful task helped lower physiological reactivity (i.e., heart rate and blood pressure) more than having a friend with them. The researchers hypothesized that the person may have viewed their dog as a strong support, whereas their friend may have the potential to judge or evaluate them.

Likewise, Allen, Blascovich, and Mendes (2002) studied the effects of a pet (i.e., cat or dog) versus a friend or spouse on stress levels during a stressful arithmetic problem. They found that not only did pet owners have a lower heart rate and blood pressure to begin with, but also they maintained a lower heart rate and blood pressure during the stressful task and were able to return to baseline levels quicker than non-pet owner participants. For those who owned pets, the lowest physiological symptoms of stress occurred when their pet was present. Additionally, the

pet-owner group completed the math problems the fastest and with the least amount of errors.

This study also used a second condition, wherein participants had to passively cope with placing their hand in cold water. Again, those who owned pets had lower physiological symptoms of stress.

In 2010, Barker, Knisely, McCain, Schubert, and Pandurangi measured heart rate and blood pressure for individuals who completed a stressful task, the Stroop Color Word Test (wherein the reader needs to discriminate the color and words presented). Those who had time with a therapy dog after the stressful task showed greater reductions in heart rate and blood pressure. This study was important because it showed that even unfamiliar dogs could positively affect physiological symptoms of stress.

Studies measuring neurochemicals. Neurochemicals are another way scientists can measure stress in individuals. Odendaal (2000) looked at several neurochemical changes that occurred in the body after a human-animal (i.e., dog) or human-human interaction. He found that as opposed to the human-human interaction, humans who interacted with a dog had significant decreases in blood pressure. Subsequently, these participants saw significant increases in oxytocin, β -endorphin, prolactin, phenylacetic acid, and dopamine. The first three neurochemicals listed (i.e., oxytocin, β -endorphin, and prolactin) are associated with social bonding, and oxytocin in particular, is associated with attachment formation. This further supports the biopsychosocial theory that animals affect humans through social support. Of note, Odendaal also found a comparable reaction for the dogs in this study. All of the neurochemical changes listed above were also found in the dogs, indicating the dog experiences the same physiological effects as the client. Finally, Odendaal (2000) found these significant

physiological decreases in stress are achieved in just 5 to 24 minutes of positive interaction with a dog. Thus, physical benefits of being with a dog occur in a short time.

Furthermore, studies have found therapy dogs lower cortisol, a neurochemical released when someone is stressed (Odendaal, 2000; O’Haire, 2013). Similar to Odendaal’s study on neurohormones, Barker, Knisely, McCain and Best (2005) found that reductions in cortisol reached clinical significance in just 5 minutes with a dog present; these lower levels of cortisol took 20 minutes to reach by resting alone without a dog present. Again, the potential for providing a quick de-stressing tool is evident. Furthermore, this study found a dose-dependent relationship between the length of time the individual was exposed to the dog and a greater amount of stress reduction. In other words, the more time someone spent with the dog, the less stress they had.

Cole, Gawlinski, Steers, and Kotlerman (2007) examined the effects of a therapy dog in a hospital with patients who were diagnosed with heart failure. Their findings indicated animal-assisted intervention lowered blood pressure, neurohormone (i.e., epinephrine and norepinephrine) levels, and reported anxiety. The researchers suggest this altering of neurohormones indicates that patients viewed the therapy dog as pleasant and meaningful.

Studies specific to youth. In the field of animal-assisted intervention, less research has been done with children and adolescents (Friedmann et al., 2011). The small number of studies have found that children tend to self-report no significant difference in feelings of anxiety after exposure to a therapy dog (Barker, Knisely, Schubert, Green, & Ameringer, 2015; Kaminski, Pellino, & Wish, 2002; Tsai, Friedmann, & Thomas, 2010). In one study, Barker and colleagues (2015) noted that although there was no significant difference in self-reported anxiety post-treatment, prior to introducing the dog, 60% of children reported “no anxiety” (p. 108). One

explanation for reporting “no anxiety” before treatment may be that children have a tendency to report their symptoms more favorably.

Unlike adults, children sometimes show an initial increase in heart rate and blood pressure when introduced to a therapy dog in a hospital setting (Kaminski et al., 2002; Tsai et al., 2010). Both researchers have reported this is likely due to excitement and increased physical activity when playing with the dog. In spite of this, Tsai and colleagues (2010) found that post-animal-assisted therapy, blood pressure decreased significantly in comparison to pre-treatment and to a control group. Furthermore, these effects lasted for a few minutes after the intervention, whereas the control group no longer demonstrated the positive effects on blood pressure of their treatment by the time the intervention was over and post-measures were being collected.

Contrary to the above research, Nangengast, Baun, Megel and Leibowitz (1997) found that having a companion dog present during a physical examination at a doctor’s office led to decreased blood pressure, heart rate, and behavioral distress in children. Kaminski et al. (2002) and Tsai et al. (2010) proposed that since the children in this study were already stressed by the upcoming physical examination, their heart rate or blood pressure would not have shown an initial increase when introduced to the dog. In short, this is an example of one difference observed with youth as opposed to adults who work with therapeutic animals.

A landmark study in 1983 conducted by Friedmann, Katcher, Thomas, Lynch, and Messent revealed the effects of a pet dog on reducing stress. Children, around the age of 12 years, were asked to spend time relaxing in a chair and then to read. Half of the children received no dog and half of the children did this activity with an unfamiliar, but friendly, pet dog. Additionally, some children received access to the dog in the beginning of the session and some saw the dog half way through the session. Findings suggest the dogs helped to lower stress in

the form of reduced heart rate and blood pressure, particularly during the stressful task of reading aloud. Furthermore, it was found that bringing the dog in earlier lowered stress more than bringing him or her in halfway through the session. The researchers hypothesized that the dog may make the researcher and the environment less threatening and more friendly to the child.

Additionally, Krause-Parello and Friedmann (2014) studied the physiological changes in children, ages 5 to 14, who were engaged in a stressful situation, as they retold stories of their sexual abuse trauma during a forensic interview. It was found that salivary immunoglobulin A (an indicator of stress) tended to be lower when the therapy dog was present for the interview. Additionally, they found significant decreases in heart rate, particularly for longer interviews and for older children, when the dog was present.

Finally, Havener et al. (2001) found that having a dog present during a dental exam helped reduce physiological indicators of stress (i.e., skin temperature), but only for children who were stressed by coming to the dentist. Children who viewed the dentist as nonthreatening tended not to show physiological differences with or without the dog present.

In summary, physiological changes in anxiety, such as heart rate, blood pressure, and neurochemicals, support the notion that dogs act as a buffer to anxiety. Moreover, the cardiovascular effects of animal-assisted intervention as it relates to stress may continue after treatment ends. In short, physiological evidence supports that animal-assisted intervention is beneficial for youth.

Psychosocial Benefits. The evidence to support the psychosocial benefits of animal-assisted therapy is growing. Before going through this evidence, it is important to discuss that many authors do not clarify whether they are using animal-assisted activities, education, or therapy. For the purposes of clarification, this paper will use “animal-assisted intervention” as

the general term describing any of these therapies. If a more specific term was described in the research article or meta-analysis, then the paper will use that term.

Nimer and Lundahl (2007) conducted the largest meta-analysis known to date on AAI. This meta-analysis compiled 48 studies using animal-assisted intervention (AAI) with a variety of populations, diagnoses, and animals. The use of the animal ranged from animal-assisted activities to animal-assisted therapy. This study revealed that AAI has moderate effect sizes for improving outcomes with clients diagnosed with autism spectrum disorder, medical difficulties, behavioral problems, and, in general, for improving emotional well-being. When compared to other animals typically used in AAI (e.g., horses, dolphins, cats), therapy dogs were consistently associated with stronger (moderately high) effect sizes. Moreover, it was found that individuals with disabilities showed even more improvement than their counterparts without disabilities on markers of emotional well-being and behavioral outcomes. A more recent systematic review of seven AAT studies found these same psychological benefits (Maujean, Pepping, & Kendall, 2015).

Two other meta-analysis were conducted on the benefits of AAI with specific populations. Souter and Miller (2007) looked at 15 studies of AAI being used in nursing home and hospital settings for patients with depression. They found AAI significantly reduced depression, with moderate effect sizes, on average. Second, O'Haire, Guerin, and Kirkham (2015) analyzed 10 studies on post-traumatic stress disorder and AAI. Their findings suggest that AAI can not only decrease depressive symptoms, but also improve anxiety and PTSD symptoms with a range of small to large effect sizes.

Literature reviews in the area of AAT suggest similar findings. There is a general agreement that therapy dogs can alleviate symptoms of anxiety, stress, depression, and anger, as

well as increase pro-social behaviors across a range of client populations varying in age and diagnoses (Barker & Wolen, 2008; DeCoursey, Russell, & Keister, 2010; Rossetti & King, 2010).

Studies specific to youth. A majority of studies on AAT with youth have small sample sizes, which is an empirical improvement on the large anecdotal data available in the field. Upon current review, only one study with a large sample was found. In 2012, Dietz, Davis, and Pennings separated 153 children and adolescents (ages 7 to 17) into three trauma-focused treatment groups: (1) no dogs, (2) dogs without stories, and (3) dogs with stories. The stories were written by the clinical director of the program and each story focused on a new topic that would be talked about that day. While the control group (i.e., no dogs) did not see any reduction in trauma symptoms, the groups with dogs saw a decrease in symptoms related to anxiety, depression, and PTSD. Furthermore, the dog group with the added story (and added structure to the program) achieved the most benefits, with greater decreases in anger, dissociation, and sexual concerns.

Similarly, Hamama and colleagues (2011) conducted a longitudinal study on 18 adolescents who had experienced a traumatic event. The researchers concluded that those who engaged with therapy dogs in AAT had significant reductions in PTSD symptoms and overall risk for PTSD compared to those who received a group intervention without the therapy dog.

In 2001, Hanselman utilized a therapy dog in a mandated anger management group for seven adolescents (ages 14 to 17). Pre- and post-measures yielded significant reductions in anger and increased feelings of happiness, security, and self-worth. Additionally, rating scales supported an increased bonding that happened between adolescents and the therapy dog

throughout the sessions. A limitation of this study was that there was not a comparison or control group.

Finally, in an exploratory study conducted by Lange, Cox, Bernert, and Jenkins (2007), five adolescents using a therapy dog to combat anger were interviewed about how they felt about having a therapy dog in their session. Their responses were similar to other research (e.g., Zents et al., 2016) stating that the dog calmed them, released tension, understood them, and made opening up to other people easier.

Animal-Assisted Therapy in Schools

Over the past two decades, therapy dogs have been utilized in schools primarily to help youth improve reading achievement (Bassette & Taber-Doughty, 2013), fine-motor coordination (Sam, Fortney, & Willenbring, 2006), and overall psychological and social functioning. Focusing on the latter, most studies on the effects of therapy dogs on psychological well-being have been on small sample sizes and anecdotal data. The largest study at this time was conducted by Tissen et al. in 2007. They studied 121 mostly typical children ages 7 to 10. These were convenient samples, composed of three separate school classrooms. Each classroom received one of the interventions: (1) social training with a dog, (2) social training without a dog, and (3) dog present without social training. The researchers assessed social behavior, impulsivity, and likelihood of bullying or victimization. They found that while social behavior and empathy improved for all programs, only the social training program with the dog decreased the likelihood of victimization of both open and relational aggression.

Two studies compared using a real dog to a toy dog in a small classroom. Martin and Farnum (2002) found that the real dog more positively affected 10 students with pervasive developmental disorders. With the real dog, children laughed more, focused more on the dog,

were more willing to talk, and were more engaged with the dog. They did engage in more hand-flapping with the dog present, which was associated with having a higher level of excitement. Similarly, Limond, Bradshaw, and Cormack (1997) found that children with Down's Syndrome were more attentive and responsive to an adult when a real dog was present. They concluded that children did not respond with the same level of attention when a fluffy toy dog was made available.

Other studies have looked at the use of a therapy dog in a classroom where most of the students were immigrants living in Europe who were dealing with transitioning to a new culture and a new language. Hergovich, Monshi, Semmler, and Zieglmayer (2002) hosted two classrooms with this population of students—one classroom ran as usual and the other classroom incorporated a therapy dog into their daily routine. Outcomes for students in the classroom with a therapy dog included better autonomous functioning, higher social integration, lowered aggression, and increased empathy in comparison to the control classroom. Likewise, Kotrschal and Ortbauer (2003) found that in comparison to baseline measures, newly immigrated students spent significantly less time alone, paid more attention to their teacher, and decreased aggression after experiencing a therapy dog in their classroom.

Moving to single-subject designed studies, Anderson and Olson (2006) researched the effects of a noncertified dog in a classroom for children classified with an emotional disturbance. Five students, ages 6 to 11, were observed, tallies of behaviors were kept, and problem-solving sheets and interviews were reviewed to provide outcome data after introducing a dog to their classroom. This data was compared to baseline data collected a few weeks prior to the dog coming into the classroom. The researchers found that students formed a bond with the dog, leading to positive emotional effects. Furthermore, as a result of the intervention, children

learned lessons of respect, responsibility, and empathy. The dog helped in de-escalating behaviors, and since the dog's arrival, the total number of explosive behaviors decreased. When behaviors did happen, they were of less intensity and duration. For example, one student went from having an explosive behavior incident that lasted 40 minutes to one lasting just 15 minutes.

Similar studies have utilized a therapy dog in their classroom for students who were classified as having an emotional disturbance. Their findings indicate that a therapy dog in this setting can increase positive initiated interactions toward the teacher as well as the dog (Esteves & Stokes, 2008). Additionally, researchers have observed a decrease in negative comments, behavior outbursts, and distractibility. Improvements were found in confidence, sense of control, and relationships with peers (Kogan, Granger, Fitchett, Helmer, & Young, 1999).

In addition to these studies, a wealth of anecdotal evidence is available on the benefits of having a therapy dog in schools. Counselors in schools can use therapy dogs to build rapport, enhance the atmosphere, and promote respect (Nebbe, 1991). Additionally, therapy dogs have been known to be a positive reward, increase motivation, improve empowerment, capitalize on social desirability, and lead to relaxation (Anderson & Olson, 2010). Furthermore, they have helped students improve their sense of control, which has led to greater self-esteem (Burton, 1995). Finally, one principal reported that therapy dogs should be used in schools because they are an intervention that can meet student's basic needs at a time when needy students are increasing and resources for intervention are at a low (Scallion, 2010).

Finally, in a descriptive study, Zents et al. (2016) examined teacher, staff, and student perceptions of having a therapy dog in their school. After conducting interviews and surveys across four school districts, they found positive support from faculty and students for having a therapy dog in their school. Over 75% of students and 60% of staff reported the therapy dog was

at least somewhat effective in improving psychological outcomes for students. Furthermore, students reported feeling a reciprocal relationship with the therapy dog and feeling understood by the dog. Teachers reported observing improvement in their students after they had visited the therapy dog. Many teachers, staff, and students discussed the positive effect the therapy dog has had on school climate and in making students feel proud of their school. Moreover, the most common reason a teacher referred a student to work with their school's therapy dog was for anxiety.

Mechanisms by which AAT May Work

Enhancing Therapeutic Alliance. A part of social development in general and a crucial part of therapy is building a relationship with others. The rapport between a client and therapist has long been known to be a predictor of success in therapy (e.g., Krupnick et al., 1996).

Rossetti and King (2010) have studied the effects of animals on building rapport between the client and therapist in a therapeutic setting. It is thought that animals act as a link between the client and therapist that helps bridge the rapport-building process. Furthermore, a withdrawn client is thought to be able to build rapport quicker with a therapy dog than with a therapist alone. Similar to what was mentioned earlier, the rapport with the dog is then transferred to the therapist.

Black and colleagues (2011) studied perceptions about AAT of nine Australian psychologists. They found both users and non-users of AAT reported they believed the primary benefit of AAT was that it enhanced the therapeutic relationship. Specifically, they believed rapport could be developed quicker with the use of an animal in therapy. Additionally, they reported AAT could be particularly useful for younger clients in opening up and communicating with a therapist more easily.

Another study utilized the Helping Alliance Questionnaire to determine if animals made a difference in the therapeutic alliance for a substance abuse counseling group that utilized reality therapy (Minatrea & Wesley, 2008). The study found that when compared to a substance abuse group not using animal-assisted therapy, the substance abuse group that did use AAT as an adjunct to their reality therapy treatment had significantly higher working alliance. Effect sizes further confirmed that AAT contributed most to this difference.

In short, enhancing the therapeutic alliance may be one way that a dog will serve as a benefit to therapy. Currently, this notion is based mostly on theory; however, there is some empirical evidence that this may be true.

Cognitive Behavioral Therapy with a Canine Co-Therapist

Only three studies known to date have utilized a dog in conjunction with cognitive-behavioral techniques. While the psychological disorders were different in each case, the function of the dog most often was to decrease stress and anxiety. The studies outlined below demonstrate how therapy dogs might be used when following cognitive behavioral principles, and what the outcomes for clients have been thus far.

First, Hunt and Chizkov (2014) studied 117 undergraduate students known to have suffered some incident of trauma. Four groups were created: (1) trauma narrative with a dog, (2) trauma narrative without a dog, (3) control group with a dog, and (4) control group without a dog. Of note, the dog used in this study was not a trained therapy dog. The purpose of the dog was to greet the participant and be available to them throughout the task. The trauma narrative groups were asked to engage in an exposure activity wherein they wrote essays about the traumatic incident they experienced. The control group was asked to write essays regarding details of three rooms. The researchers found that having a dog in the room did not interfere

with overall emotional processing, and instead made writing about difficult topics less distressing. Furthermore, those in the dog conditions reported significantly less anxious arousal, and those in the trauma with dog condition reported a significant decrease in depressive symptoms. In terms of CBT, the researchers concluded that having a dog in the therapy room is likely to make prolonged exposure more tolerable without interfering with effectiveness.

Second, Gonzalez-Ramirez et al. (2013) conducted treatment groups for stress management using cognitive behavioral techniques. Of note, while the study began with 30 adults, only 12 completed the entire program and thus, 12 were used for data analysis purposes. Both groups engaged in CBT; however, one group utilized a therapy dog as a component of treatment. This therapy dog was systematically integrated into the topics so that there were specific activities that incorporated the dog. Results indicated both groups saw significant decreases in stress and overall psychosomatic symptoms. What was impressive about this study was that the group with a therapy dog saw greater adherence to treatment (as reported by motivational scales) and experienced fewer dropouts. At the end, only three remained in the control group, while nine remained in the therapy dog group.

Third, Hanselman (2001) incorporated a therapy dog into his anger management group with seven adolescents (ages 14 to 17). Of importance, some of these adolescents were court mandated to be in treatment. The therapy dog was not given any specific role, except to allow adolescents to pet him throughout the session. In comparison to pre-test measures, post-test measures yielded significant decreases in state and trait anger, as well as fatigue. There were increases in animal bonding, and subsequently, the therapy dog contributed to increased feelings of happiness, security, and self-worth. Of note, the study did observe an increase in depression. The researchers hypothesized this was due to the adolescents' inability to use drugs or alcohol

during treatment. One limitation of this study is that it did not use a control or comparison group.

Overall, these studies illustrate the effectiveness of therapy dogs as an addition to a well-researched therapy (i.e., cognitive-behavior therapy). Therapists are finding benefits of AAT in decreasing anxiety while increasing security and adherence to treatment that appear to go beyond what cognitive-behavior therapy provides alone.

General Model for using CBT with AAT. Chandler and colleagues (2010) provide specific ways to incorporate therapy dogs into treatment based the therapeutic orientation to which the therapist adheres. Within this, the researchers provide several ways for therapists to use a therapy dog that fits within the scope of intentions and techniques aligned with CBT. It should be noted that this is a preliminary suggestion for conducting animal-assisted therapy based on knowledge of AAT and counseling; research has not been conducted on this model. This model was created to address a gap in research. Most articles on AAT do not explicitly state what to do with a therapy dog during treatment.

Chandler and colleagues (2010) suggest that in CBT, the intention of incorporating a therapy dog is likely to be to build rapport in the therapeutic relationship; facilitate insight; enhance social skills, relationship skills, and self-confidence; model specific behaviors; encourage sharing of feelings; and to enhance trust in the therapeutic environment. Specific CBT-related activities to achieve these goals are to reflect on the client's relationship with the therapy animal, encourage the client to play with the animal during session, interact with the therapy animal, encourage the client to ask the animal to perform tricks or give commands, comment on spontaneous client-animal interactions, and create specific/structured activities with

the therapy animal. This general model gives insight into the way AAT can be conducted under the lens of CBT.

Summary

About one quarter of adolescents experience anxiety that is debilitating and impacts their everyday functioning. Schools are in a unique position wherein they have access to many adolescents. As such, they have the opportunity to identify students who would benefit from additional coping resources to manage their anxiety. By doing this, schools are likely to see students' academic performance increase, since significant anxiety is one contributor to poor academic performance. Adolescents, in particular, may benefit from the extra support in school since they are at a time when pressure to succeed in school increases and less support is often provided.

Current research supports the use of cognitive-behavior therapy for the treatment of anxiety in adolescents. The C.A.T. Project is an evidenced-based treatment designed for adolescents. However, research indicates that the short nature and learning focus of CBT programs, such as the C.A.T. Project, do not allow the time or focus needed for the therapeutic relationship to develop. By adding a therapy dog to the C.A.T. Project, symptom improvement and therapeutic alliance might be achieved quicker. Furthermore, there is research to suggest that a therapy dog, as a supplement to treatment, can aid in improving mental health outcomes. This is particularly true for psychological and physiological symptoms of anxiety.

The current study sought to demonstrate the psychological effect of a therapy dog as a co-therapist on a group of adolescents following the C.A.T. Project in the school setting. Furthermore, the study assessed therapeutic alliance throughout the sessions in order to gain a better understanding of its contribution to therapy when AAT and CBT are combined.

Chapter 3

Method

Design

In order to test the hypothesis that therapy dogs can lead to greater improvement for adolescents struggling with stress or anxiety symptoms, a quasi-experimental design was used. The independent variable was treatment group membership, consisting of two conditions—a CBT only condition and a CBT + AAT condition. CBT + AAT was considered to be the new experimental condition, while CBT only, which is typically used to treat anxiety, was the comparison condition. Dependent variables included a pre-and post-measure of anxiety, a different measure of anxiety that was used as a progress monitoring tool, and a questionnaire assessing and monitoring the therapeutic alliance between participants and facilitators. The development of the therapeutic alliance between each individual and therapist was monitored weekly in order to observe any relations between treatment condition, session number, and reported symptoms of anxiety.

Participants

Students from two school districts participated in this study. Each school district had two facilitators (school psychologists, school social workers, and school counselors) who both conducted one CBT only treatment group and one CBT + AAT treatment group in their respective schools.

School District A is a rural middle school in Western, NY. Facilitators included one school psychologist and one school counselor. Participants were six students. School District B is a suburban alternative school in Eastern, TN. Facilitators were one social worker and one school counselor. Participants were four students.

After combining data from both schools, there were four participants in the CBT only treatment group. The group was comprised of three males and one female, all of whom were fourteen years old and in eighth grade. Three of these participants identified as White and one identified as Black/African American. All participants were classified for special education under the category of Learning Disability. Two of the four participants acknowledged previously attending counseling for anxiety-related problems. None of the participants reported a psychiatric diagnosis or psychiatric medication.

Six participants were in the CBT + AAT treatment group. The group was comprised of four males and two females. All participants identified as White and one participant additionally identified as Hispanic/Latino. Two participants were in each of 5th grade, 6th grade, and 8th grades. None of the participants reported receiving special education services, having a psychiatric diagnosis or taking psychiatric medication. However, four of the six participants reported previously attending counseling for anxiety-related problems. Demographic data for both treatment groups is also listed in Table 1.

All participants met anxiety symptom criteria to participate in the study. This was met when students scored a 25 or greater on the Screen for Child Anxiety Related Emotional Disorders (SCARED), which is described in more detail below. Additionally, the students passed the exclusionary criteria. This criteria were as follows: students who have an educational disability classification of Intellectual Disability, began a medication regimen for anxiety or depression within the past 4 weeks, are currently attending psychotherapy sessions for anxiety, or have a fear or allergy to dogs. Participants agreed that they would not begin medication or psychotherapy for anxiety during the course of this study.

Measures

Screening measure.

Screen for Child Anxiety Related Emotional Disorders—Child Version (SCARED; Birmaher et al., 1999). This is available in Appendix A. This questionnaire was used as a screener/baseline that qualified individuals to participate in the study, as well as the post-treatment measurement of anxiety. A total score of 25 or more on the self-report qualified an individual to participate in this study. This score was selected based on Birmaher and colleagues (1999) suggestion that a 25 or greater is indicative of a possible anxiety disorder.

The SCARED is a 41-item self-report questionnaire in pencil and paper format appropriate for the use with individuals ages 9 to 18. Responses are scored from 0 - 2, where 0 = “not true/hardly ever true,” 1 = “somewhat true or sometimes true,” and 2 = “very often true or often true.” The scores are then added to obtain a total score. The total score can range from 0 to 82.

The SCARED has good reliability and validity statistics for use with adolescents. A factor analysis yielded five separate subscales of anxiety: panic disorder, generalized anxiety disorder, separation anxiety, social anxiety disorder, and significant school avoidance. Internal consistency ranged from .74 to .89. In another study, Haley, Puskar, and Terhorst (2011) calculated reliability and validity statistics for 196 adolescents in a rural high school, similar to the population parameters for the current study. They found the internal consistency to be .93 and test-retest reliability to be .70. Test-retest reliability was .86 for the total score. For the purpose of the current study, only the total score was used.

Dependent Measures.

Zung Anxiety Assessment Tool (Zung, 1971; see Appendix B). The Zung Anxiety Assessment Tool was used as a form of progress monitoring for anxiety symptoms. Students filled out the form once per week at the end of each session. This is a 20-item, self-report questionnaire that is completed with pencil and paper. It is a measure of anxiety symptoms over the past week and yields an anxiety index score. It takes approximately 5 minutes to complete. Participants rated their anxiety on a 4-point scale as (1) = none or little of the time, (2) = some of the time, (3) = good part of the time, or (4) most or all of the time. Response items' scoring values are then added to obtain a raw score total, and then converted to an anxiety index score. The anxiety index score can range from 20 to 80. Raw scores were used in the statistical analyses as described in the analyses section, while the converted anxiety index score and ranges were used to describe the sample. Scores are characterized as follows: below 45 = within normal range, 45 to 59 = minimal to moderate anxiety, 60 to 74 = marked to severe anxiety, and 75 and over = most extreme anxiety.

Revised Helping Alliance Questionnaire (HAQ-II; Luborsky et al., 1996; see Appendix C). The HAQ-II was used as a form of progress monitoring measuring the students' perception of therapeutic alliance between the student and therapist. Students filled out the form once per week at the end of each session. This is a 19-item self-report questionnaire in a paper and pencil format. There is a therapist and patient version of the HAQ-II. For the current study, only the patient version of the HAQ-II was used, as it was reported to be a better predictor (than the therapist version) of overall working alliance in the therapeutic relationship (Luborsky et al., 1996).

The HAQ-II does not currently have an age range associated with it; however, it was studied primarily in adults by Luborsky et al. (1996). Additionally, a French translation of the HAQ-I was administered to children 9 and older and found to have good statistical validity and reliability (Kermarrec, Kabuth, Bursztejn, & Guillemin, 2006).

The HAQ-II is designed to assess the working relationship or therapeutic alliance between a therapist and client by using a 6-point Likert scale ranging from 1 = strongly disagree to 6 = strongly agree. Luborsky et al. (1996) reports items are scored by reverse-scoring the negatively worded items and summing the scores. Summed scores can range from 19 to 114. A sum of scores of 86 or higher is indicative of good working alliance. It is important to note that this score was based on one study's average total scores following what was subjectively decided to be a good session. Thus, it is important to also look at the mean score (with a mean between 4 and 6 pointing to better working alliance) in addition to the cut off score of 86.

As reported by Luborsky et al. (1996), this measure has high internal consistency (.90-.93) for the patient version. Test-retest reliability is moderate at .78 for the patient version. The HAQ-II has been studied as a repeated measure by the authors in Luborsky et al. (1996).

Treatment Intervention Tools.

The C.A.T. Project (revised). The original version of the C.A.T. Project was developed by Kendall et al. (2002). This is a 16-week manualized CBT treatment program for adolescents aged 14 through 17. It includes a 1-hour session per week with 14 sessions for the therapist to work with the participant and 2 sessions to work with the parent(s). The purpose of the program is to treat anxiety disorders through cognitive-behavioral therapy, which includes psychoeducation, learning about one's antecedents and consequences of anxiety, and exposure tasks designed to help the individual overcome anxiety. Throughout the sessions, students create

a FEAR plan. FEAR is an acronym that reminds students to recognize and correct their responses to anxiety. The acronym stands for: F = Feeling Frightened, E = Expecting bad things to happen, A = Attitudes and actions that will help, and R = Results and rewards. The program includes three books: one workbook for the participant, one book for the parent(s), and one treatment manual for the facilitator. In addition to tasks completed during session, there is weekly homework for the student and parent to complete on their own.

It has been recognized that a 16-week program may not be feasible for a school (Mychailszyn et al., 2011). Schools often face time constraints and there is concern that students will not have enough time to calm down after an exposure task. In order to address these concerns, the current study utilized a treatment protocol that maintained the essential components of the C.A.T. Project while condensing the program to nine sessions. There has been research conducted on the C.A.T. Project's sister-program, the Coping Cat, on the efficacy of an eight-session program. Crawley and colleagues (2014) found that after the eight-week program, 42% of participants no longer met criteria for an anxiety disorder. Additionally, in a single-subject design, Beidas et al. (2013) reported improvements in a seven-year-old boy diagnosed with generalized anxiety disorder, separation anxiety disorder, and a specific phobia. At the end of the eight-week treatment, he no longer met criteria for any of the three anxiety disorders and moved from "markedly ill" on the Clinical Global Impression Severity to "borderline mentally ill" (p. 144). Moreover, other research has demonstrated no difference on outcomes between CBT programs that are nine-sessions long versus anything longer (Reynolds et al., 2012). This research also found that there was no difference in outcomes between CBT programs that utilized parent sessions or not.

In the current study, the author used a nine-session (1 hour per week) program that the author adopted using similar changes made by Beidas et al.'s Brief Cognitive-Behavior Therapy (2013). Appendix D includes a sample of the instructions for the C.A.T. Project and the additional instructions for using the dog. While Beidas and his colleagues' brief version utilized the Coping Cat, the changes (i.e., eliminating parent sessions and relaxation training sessions and decreasing the number of exposure sessions) were easily applicable to the C.A.T. Project. Additionally, their article outlined session-by-session activities in the brief version, thus adding to the ease of this adaptation for the C.A.T. Project. Although Brief Cognitive-Behavior Therapy consisted of eight sessions, a ninth session for continued practice with exposure was added in the current study due to the research supporting nine sessions of CBT (Reynolds et al., 2012).

C.A.T. Plus Dog Treatment Protocol. This intervention utilized the same protocol that was adapted from the C.A.T. Project, however, there are explicit instructions for incorporating a therapy dog into the treatment session. This was heavily influenced by Chandler's (2010) outline of activities that a therapy dog could do within the realm of CBT. Activities with the therapy dog were inserted into the C.A.T. Project during FLEX activities, or activities that were encouraged by the authors to be adapted to the needs of the participant. Additionally, the therapy dog was incorporated into rapport-building exercises and end-of-the-session playtime.

Some guidelines for the therapy dog's use in sessions included: (1) always allowing the therapy dog to be available to students (unless the dog needs a break), (2) when not involved in a specific activity the dog should be able to walk around the room and sit with students, (3) students are encouraged to call the dog over if they'd like to pet him as long as they are paying attention to directions, and (4) during the first and last five minutes of session, students had time to interact with the dog. Additionally, it is noted that students did not incorporate the therapy

dog in their FEAR plan for overcoming anxiety because the therapy dog will not always be available to them outside of session.

Coping with Anxiety Fidelity Monitoring Tool (see Appendix E for sample). The author designed two versions of this form to monitor the fidelity of treatment for the CBT only (Form A) and CBT + AAT groups (Form B). At the end of every session, the group facilitator completed the Fidelity Monitoring Tool. This consisted of a system of checklists that coincide with each group and each session number. Moreover, the checklists corresponded with each section of the C.A.T. Project manual. Facilitators also had the opportunity to provide feedback on implementation at the bottom of each checklist. The Fidelity Monitoring Tool was e-mailed to the author by the end of the day on Fridays throughout the implementation of the program. This allowed the author time to provide training and answer questions as they come up. This tool is part of the fidelity-monitoring activities.

Facilitators

Facilitators were recruited by reaching out to the author's professional contacts. These are school psychologists and school counselors who were known to have therapy dogs working in their schools. Additionally, an e-mail listserv obtained from a therapy dog organization was used to recruit facilitators. All potential facilitators were sent an email regarding the nature of the study and their responsibilities, as well as compensation for their agreement to facilitate groups for the study.

Each school had two facilitators who have experience working with the therapy dog they were using. This therapy dog belonged to one of the facilitators in each school district. The facilitators worked together to run both groups (i.e., the CBT only group and CBT + AAT group) at their school. Facilitators first attended a 3.5-hour training wherein they became familiar with

the C.A.T. Project manual and how to use the therapy dog in session as intended for this study. Further details about contact with facilitators are included below in the procedures section. Additionally, facilitators were given access to email, phone, and video contact with the author. Finally, facilitators were compensated monetarily in addition to gaining the training on the C.A.T. Project, animal-assisted therapy, and training on these topics. They also received the results from this study, which may be used to support the use of dogs in their school. Both school districts prohibited the direct payment to facilitators for their work during school hours. Instead, one school opted to have their monetary compensation (\$200) donated to a local therapy dog organization. The second school opted to use their money (\$250) toward school-related services and prizes for students.

A third facilitator was recruited for the study; however, that individual discontinued participation after a few weeks because they were unable to recruit participants for the study. This facilitator was compensated for their time with a \$25 gift card and a copy of the C.A.T. Project therapist manual, client workbook, and training DVD.

Therapy Dogs

Each school district participating in this study had a therapy dog. The therapy dogs were certified through Human-Animal Bond in Tennessee (H.A.B.I.T.) or Therapy Dogs International. This certification entails that they had received obedience training and met a high standard of requirements (e.g., ability to walk past a stranger without turning their heads, walking by a table with food without stopping).

Lady (pseudonym). Working for School District A, Lady was a ten-year-old Golden Retriever. She has received the following trainings: puppy preschool, family companion, graduate family companion, basic obedience, and agility. She was certified through Canine

Good Citizen and Therapy Dogs International. Lady worked alongside a school psychologist and has been in the schools since she was six months old. She has worked with students in grades K-8. Her primary role has been de-escalation, rapport building, reading, individual and group counseling, sitting in on special education team meetings, calming students before big exams, and walking laps with students in the mornings.

Luke (pseudonym). Working for School District B, Luke is an eight-year-old Black Labrador Retriever. He was trained and certified through H.A.B.I.T. Luke worked alongside a school social worker. He has been working in schools (grades K-12) for three years. His primary role in the school has been to help with de-escalation, rapport building, reading, individual counseling, and group counseling.

Procedures

School counselors and school psychologists in the Western, NY and Eastern, TN regions who are known to have therapy dogs were contacted. They were informed about the requirements and compensation for participating in the study. Once in agreement and with approval from the school (obtained by the school counselor/psychologist), they signed a facilitator agreement (see Appendix F).

As part of this agreement, facilitators participated in a 3.5-hour training. This was done via video messaging for School District A and in person for School District B. Training consisted of reviewing principles of cognitive-behavior therapy, discussing details of the Coping with Anxiety program, and going over necessary forms required for the study. All study materials were mailed ahead of time to School District A and brought to School District B to be reviewed during training. Facilitators were instructed to watch a multi-media video on their own (CBT4CBT: Computer-Based Training to be a Cognitive-Behavioral Therapist) instructing

therapists on using the C.A.T. Project manualized treatment. The DVD and accompanying comprehension questions created by the authors of CBT4CBT were completed prior to the start of the therapy groups. Finally, facilitators were informed of a weekly supervision schedule. During the first three weeks following training, facilitators checked in with the author via e-mail in order to share their progress on obtaining participants and troubleshoot any issues they were having.

Next, facilitators were asked to discuss the Coping with Anxiety program with potential student participants, other mental health workers in the school, and teachers. Teachers and mental health professionals were given a referral handout (see Appendix G) describing the study and student characteristics that were appropriate for the study so that they knew whom to refer. The Coping with Anxiety program brochures (see Appendix H) were distributed to all potential participants identified by the facilitator, another school mental health counselor, or teacher. The facilitator reviewed the Coping with Anxiety Program and provided a brochure to each potential participant for the study. Potential participants were given an informed consent and assent (see Appendix I-J) and asked to return it to the facilitator as soon as possible.

Once informed consent was received for each student, the facilitator made contact with the student's parent via email or telephone to complete the demographic questionnaire (see Appendix K). This questionnaire assessed the student's gender, age, grade, race, current diagnoses, educational disability classification, whether or not the participant has started medication or psychotherapy within the past four weeks, and whether or not a change in medication or counseling is currently being considered. As stated previously, students who were planning on beginning a new treatment elsewhere, were disqualified. Parents and students were asked not to start or stop outside counseling or medication during the study. If they must, they

were asked to notify their facilitator and their data may have been rejected from the final analysis. This did not occur during the study.

After the demographic form was completed, the facilitator made contact with the student as soon as possible to complete the SCARED. Facilitators scored the SCARED. Total Scores of a 25 or greater qualified the student to participate in the study. Facilitators informed students and parents whether or not they qualified to be in the study. All students who completed the SCARED pre-assessment scored 20 or greater, with 8 out of 10 students scoring 25 or greater. Due to the small number of potential participants, all of these students were allowed to participate in the study.

Participants from each school were placed in one of the treatment conditions. For one school, using a Random Number Generator, each participant was randomly selected to a condition (e.g., CBT only or CBT + AAT). Facilitators in the other school were unable to use random selection because of the age gaps and schedules of participants. Students were assigned groups based on their lunch schedule, which was assigned by grade in their school district. Four younger students were placed in one group (CBT + AAT) and two older students were placed in the other group (CBT only). The facilitator chose to have the dog in the group with the largest number of participants so that more students would have an opportunity to experience working with the dog. The author permitted this to encourage facilitator and school district buy-in for participating in the study.

Each group contained two or four students and two group facilitators who were trained and were receiving supervision on the study. Facilitators scheduled both groups [CBT only (n = 4) and CBT + AAT (n = 6)] in the same week for the duration of treatment. Facilitators reported

conducting the CBT + AAT group prior to the CBT only group each week in order to prevent practice effects of facilitating groups.

One of the two groups at each site systematically incorporated the school's therapy dog into the group. Facilitators did this by following a protocol that integrates the therapy dog into each of the sessions outlined by the revised version of the C.A.T. Project using research-based strategies for incorporating animals into cognitive-behavior therapy (see Appendix D).

As mentioned above, the revised C.A.T. Project involved nine sessions that lasted one hour each. Due to scheduling conflicts in the schools, it was not always possible to pull students for a full hour. School District A conducted sessions for 30 to 45 minutes each week. School District B had more flexibility because it was an alternative school. They conducted sessions for 45 minutes to one hour each week. Facilitators were instructed to follow the C.A.T. Project manual and help students use the C.A.T. Project workbook in a specified order (skipping certain practice sections in order to decrease the total session number to nine). The CBT + AAT group had specific instructions on how to incorporate the dog into treatment.

Study entry qualification and baseline data was collected utilizing the SCARED, given prior to the first day of treatment. After that first week, facilitators e-mailed the author their informed consents, demographic information sheets, and SCARED screening measures. Also, starting this week and continuing until the end of the study, facilitators sent the author scanned copies of completed measures (de-identified) and the Fidelity Monitoring Tool for that week's sessions. At the end of the first week of implementing group treatment, the author called each facilitator in order to discuss any deviations from standardization and to problem-solve any difficulties in order to maintain treatment fidelity. Both school districts reported needing more time to complete the psychoeducational tasks in the first session. They were advised to finish

what they could and complete tasks they did not get to in subsequent sessions. Emphasis was placed on taking the time to teach students the skills (i.e., the psychoeducational parts of the treatment program). The exposure or practice portion of the program was shortened to only a few sessions at the end, with the hope that students would also practice these skills at home. At this point, it was determined that facilitators would check in with the author via e-mail on a weekly basis.

The Fidelity Monitoring Tool was comprised of two forms: Form A (CBT Only) and Form B (CBT + AAT). Each form included a comprehensive checklist of tasks and rating scales that needed to be completed during each session. The Fidelity Monitoring Tool was a way to ensure integrity and accountability was maintained throughout the program. Facilitators utilized this tool to ensure they completed all of the tasks required of each session as well as the necessary rating scales. At the end of each week, facilitators sent the author copies of the completed Fidelity Monitoring Tool and they were able to discuss and problem-solve issues that came up with completing all of the tasks (e.g., running out of time) on a weekly basis. At the end of the study, the Fidelity Monitoring Tool served as an extra form of assurance that all of the tasks were completed in each treatment group. Of importance, in order to problem-solve too much material to cover in the time frame allowed at the schools, some of the tasks were eliminated from the Fidelity Monitoring Tool. This was discussed prior to the session during weekly consultations between the researcher and facilitators. Again, the material eliminated consisted mostly of the extra exposure or practice tasks that were scheduled to occur during sessions.

At the end of each session, students completed the Zung Anxiety Assessment and HAQ-II- patient version, and facilitators completed the Fidelity Monitoring Tool. Although they were

planned to take approximately five minutes to complete, facilitators reported students needed 10 to 15 minutes to complete questionnaires and required considerable help interpreting the questions being asked (especially for younger students). Facilitators were encouraged to help participants understand the questionnaire and give them the time needed to complete the questionnaires each week. During the final session, students completed the SCARED, the Zung Anxiety Self-Assessment, and HAQ-II. At this time, facilitators distributed the debriefing statement to all participants (see Appendix L).

Chapter 4

Results

In the analysis of the current study, the researcher was looking to see changes in anxiety symptoms and therapeutic alliance ratings throughout the course of treatment for the CBT only and CBT + AAT groups. Due to the nature of the measures used (i.e., Likert scales) and the small sample size, small-n design was used to analyze the data. Afterward, nonparametric statistics were used to determine if there were significant differences within and between treatment groups.

Analysis: Small-n Design

Data analysis began with charting each participant's progress on measures of anxiety and therapeutic alliance across sessions. First, each participant's Zung Anxiety Self-Assessment total score per session was graphed and a trend line was generated. The first session's score was used as baseline. The graph and trend line were used to draw conclusions about each participant's level of anxiety across sessions.

Second, each participant's Screen for Child Anxiety Related Disorders (SCARED) scores were compared from the beginning to the end of treatment. That is, the post-treatment anxiety score was subtracted from the pre-treatment anxiety score in order to find the change in scores. This provided general information about the change in reported anxiety after treatment.

Third, each participant's Helping Alliance Questionnaire (HAQ-II) scores per session were treated similarly to the Zung Anxiety Self-Assessment scores; they were graphed and a trend line was generated.

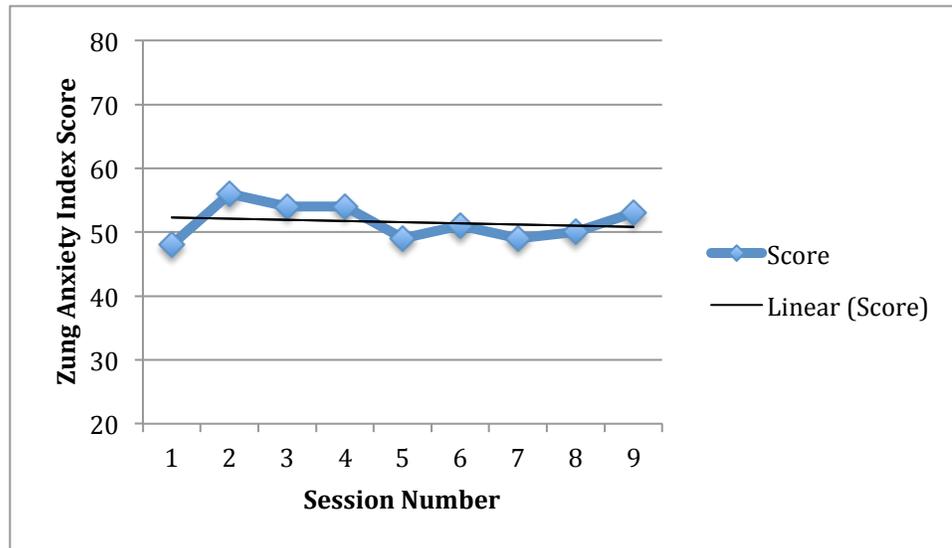
Finally, participants' graphs were visually compared to determine overall anxiety and therapeutic alliance trends within and between subjects. The trends in responses are described as

increasing, decreasing, and the stability of answers. Additionally, any sudden increases or decreases in responses were noted.

Graphs displaying each participant's progression on measures of anxiety and therapeutic alliance are located in the text and identified as Figures 2 through 21. Missing data was due to absences, while an extended absence led to one participant dropping out. Data from individual participants are described below.

CBT Only Condition.

Participant 1. This participant was male, 14 years old, and in eighth grade. According to the Zung Anxiety Self-Assessment (here on referred to as the Zung), Participant 1's anxiety index score at baseline was 48 (see Figure 2), which is consistent with minimal to moderate anxiety. After an initial increase to 56 points (still within the moderate range), the participant reported a decrease in anxiety with the lowest index score at 49. At the end of the treatment, he reported a slight increase in anxiety to 53 points, which is in the minimal to moderate anxiety range. Overall, the trend line shows Participant 1 appeared to have slightly decreased (slope = -0.18) reported anxiety throughout treatment; however, his score remained in the minimal to moderate anxiety range.

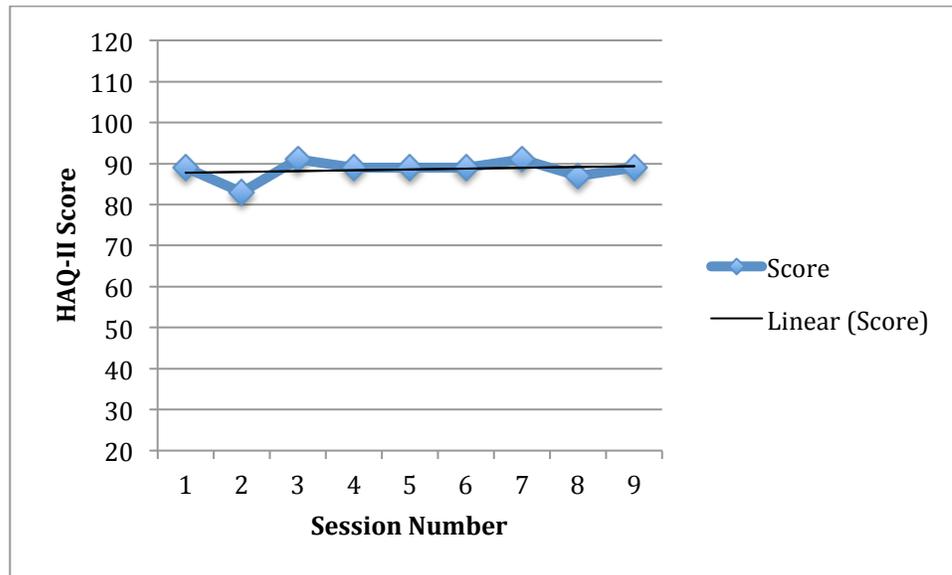
Figure 2. *Participant 1 Zung Scores: Repeated Measure of Anxiety*

The SCARED measure provided a cut-off score for a possible anxiety disorder at 25 points. Participant 1 rated his initial anxiety level at 53 points, indicating a possible anxiety disorder. After treatment, he rated his anxiety level at 26 points, which is nearing subclinical levels. Overall, this is a 27-point decrease. This decrease in anxiety is consistent with reported anxiety on the Zung.

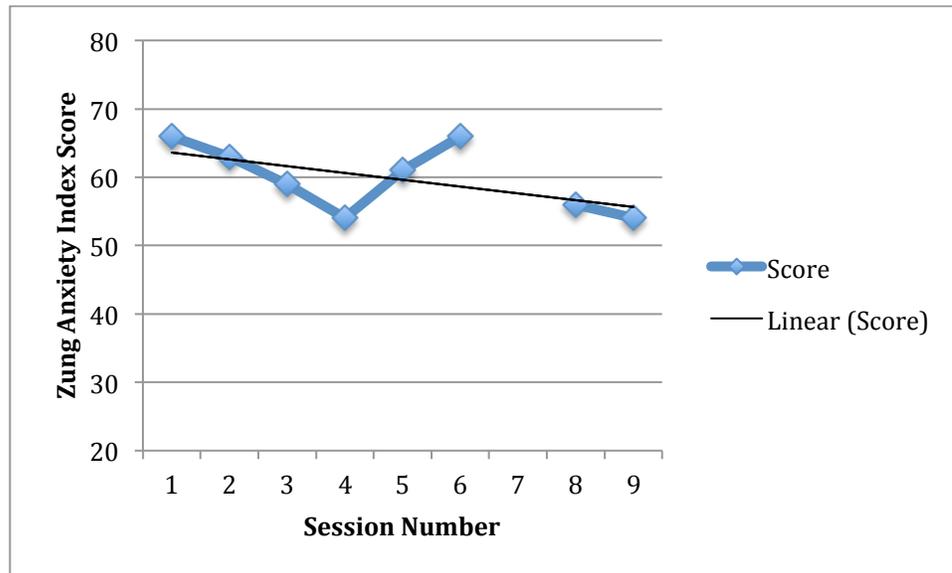
Results of a repeated measure of therapeutic alliance (i.e., HAQ-II) as reported from the participant's perspective, showed that therapeutic alliance began at a total score of 89. This is above the HAQ-II cut-off score of 86 or higher used to determine good therapeutic working alliance. As shown in Figure 3, the participant rated his second session at 83 points. This indicates a drop in therapeutic alliance. However, following this session, therapeutic alliance increased to 91 points and remained relatively stable between 87 and 91 points throughout the rest of the sessions. The graph depicts an increasingly positive relationship throughout sessions with a slope of 0.20. On the HAQ-II rating scale of 1 to 6 (with 1 being least favorable and 6

being most favorable), this participant's average rating of their therapist was a 4.6. This shows the participant typically saw his relationship with his therapist as favorable.

Figure 3. *Participant 1 HAQ-II Scores: Repeated Measure of Therapeutic Alliance*

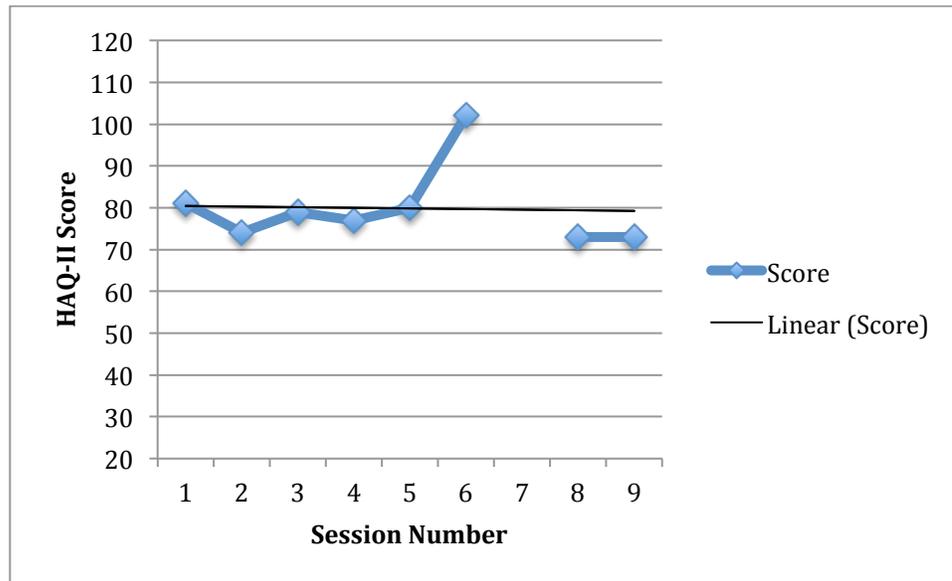


Participant 2. This participant was female, fourteen years old, and in eighth grade. According to self-reports on the Zung, Participant 2's baseline anxiety level was at 66 points. This is in the marked to severe anxiety range. Figure 4 depicts a steady decrease in anxiety until sessions 5 and 6, where there was a sharp increase from 54 to 61 points. The participant missed the 7th session and returned to lower levels of anxiety in the last two sessions. Participant 2 ended treatment with a rating of 54, which is considered in the minimal to moderate anxiety range. The trend line shows an overall decrease in anxiety throughout treatment with a slope of -0.99 .

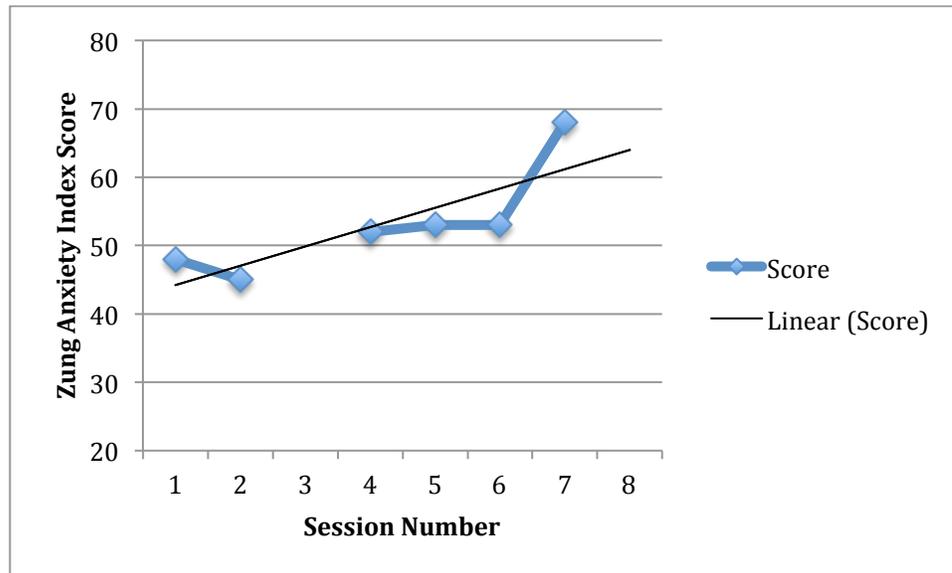
Figure 4. *Participant 2 Zung Scores: Repeated Measure of Anxiety*

Participant 2 rated her initial anxiety as a 50 on the SCARED measure, which is consistent with possible anxiety. She ended treatment with a SCARED measure of 31, which is only slightly above the cut-off of 25 points for a possible anxiety disorder. This is a 19-point decrease (see Table 2). This decrease in anxiety is consistent with her reported anxiety on the Zung.

Self-report data showed therapeutic alliance began with a HAQ-II score of 80 points, which is slightly lower than the cut-off of 86 points indicative of good therapeutic working alliance (see Figure 5). Although Participant 2 rated her relationship with her therapist to be consistent throughout most of treatment, there was a notable increase in therapeutic alliance in session 6 (80 to 102 points). Despite this, the trend (slope = -0.15) shows the participant had a stable perception of therapeutic alliance throughout treatment. On the HAQ-II rating scale (1 to 6), the participant's average rating was 4.2, indicating she often saw her relationship with her therapist as favorable.

Figure 5. *Participant 2 HAQ-II Scores: Repeated Measure of Therapeutic Alliance*

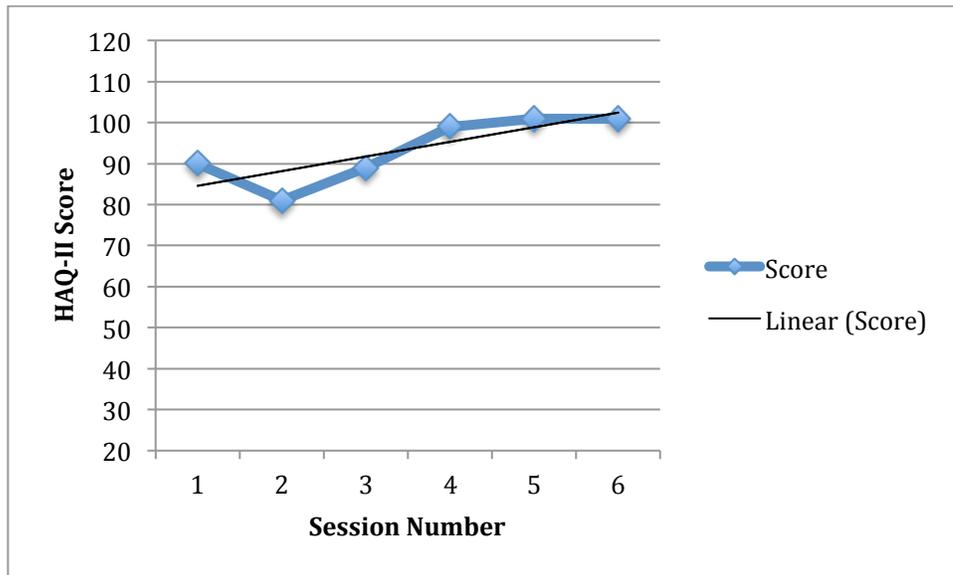
Participant 3. Participant 3 was male, fourteen years old, and in eighth grade. Self-report measures using the Zung revealed a baseline Anxiety Index Score of 48, which is indicative of minimal to moderate levels of anxiety. Figure 6 depicts Participant 3's ratings of anxiety remained near 50 throughout most of treatment. During the last attended session (session 7), the participant rated his anxiety at 68 points, which is in the marked to severe range. It should be noted that this participant missed sessions 3, 8, and 9 due to absences. Overall, the trend line shows an increase in anxiety throughout treatment with a slope of 2.83.

Figure 6. *Participant 3 Zung Scores: Repeated Measure of Anxiety*

Participant 3 reported an initial SCARED total score of 20. This is slightly below the SCARED cut-off score for possible anxiety (i.e., 25 points). However, at the end of treatment, the participant reported a SCARED score of 26, which is slightly above the cut-off for possible anxiety. This is a 6-point increase (see Table 2).

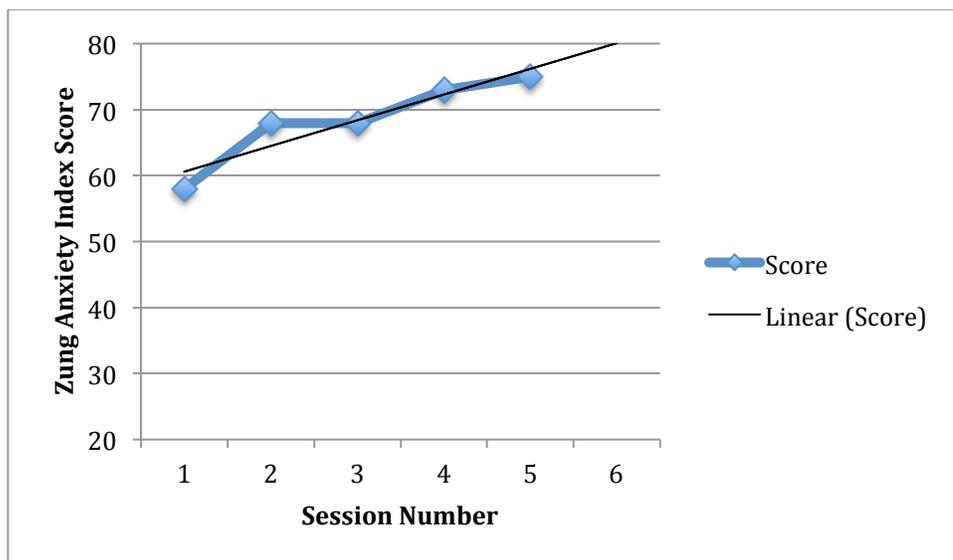
Participant 3's reported therapeutic alliance began with a HAQ-II total score of 90, which is indicative of good therapeutic working alliance. There was a decrease in therapeutic alliance (to 80 points) in the second session and a steady increase thereafter. Overall, the trend line shows an increasingly positive therapeutic alliance (slope = 3.97) as perceived by the participant. Additionally, an average HAQ-II rating of 5.6 shows the participant often had a very favorable view of their therapeutic relationship.

Figure 7. *Participant 3 HAQ-II Scores: Repeated Measure of Therapeutic Alliance*



Participant 4. Participant 4 was a male, fourteen years old, and in eighth grade. As Figure 8 shows, he began with an anxiety index score of 58. This is indicative of minimal to moderate anxiety. The trend line shows an overall increase in anxiety with a slope of 3.90, ending with an anxiety index score of 75 prior to dropping out of the study. This score is indicative of most extreme anxiety.

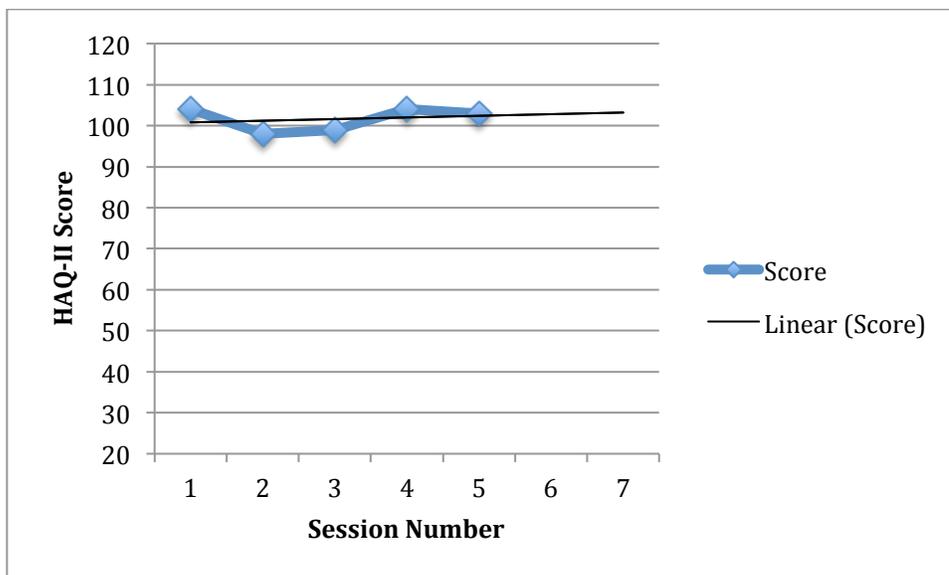
Figure 8. *Participant 4 Zung Scores: Repeated Measure of Anxiety*



Participant 4 rated his initial anxiety level being a 20 on the SCARED measure (see Table 2). This is consistent with sub-clinical levels of anxiety. However, due to the participant not completing the study, due to school absences, the post-treatment SCARED measure could not be obtained; the reasons for these absences were unknown.

Self-reports indicated therapeutic alliance began with an HAQ-II score of 104 points, which is indicative of a good therapeutic working relationship (see Figure 9). Although the graph depicts a decrease of therapeutic alliance in the second session (to 98 points), the participant's perception of therapeutic alliance remained high throughout treatment. The trend line shows an overall increase in therapeutic alliance with a slope of 0.40. Additionally, Participant 4 had an average HAQ-II rating of 5.3, which is consistent with a good therapeutic alliance.

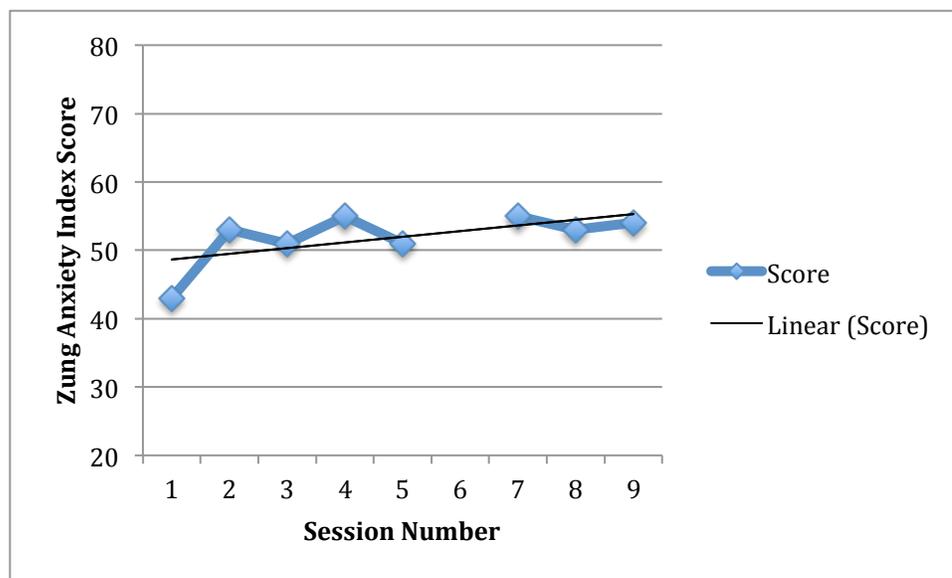
Figure 9. *Participant 4 HAQ-II Scores: Repeated Measure of Therapeutic Alliance*



CBT + AAT Condition.

Participant 5. Participant 5 was female, eleven years old, and in fifth grade. Her baseline Zung anxiety index score was 43 (see Figure 10). This is consistent with minimal to moderate anxiety. According to her scores, she had a sharp increase in anxiety at the second session (Zung = 53) and a steady increase in anxiety thereafter, with scores reaching as high as 55 points. This is still within the minimal to moderate range of anxiety. As the graph depicts, the participant was absent during session 6 thus data was not obtained for that session. Overall, the trend line shows an increase in anxiety throughout treatment with a slope of 0.83.

Figure 10. *Participant 5 Zung Scores: Repeated Measure of Anxiety*

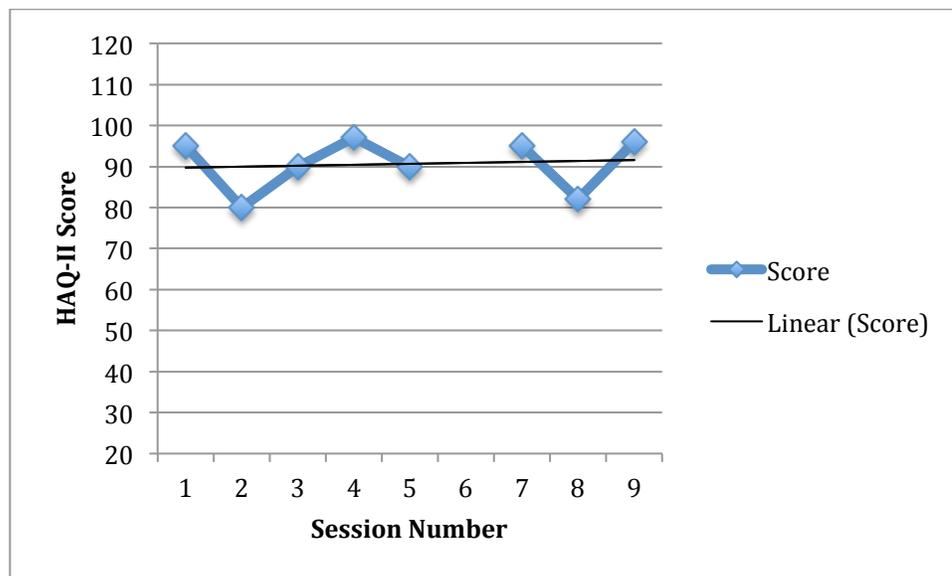


Participant 5 rated her initial anxiety to be a 42 on the SCARED measure. This is beyond the cut-off of 25 points indicating a possible anxiety disorder. The participant rated her post-treatment anxiety to be a 51 on the SCARED measure. This is a 9-point increase (see Table 2). This increase in anxiety is consistent with reported anxiety on the Zung.

Self-reports indicate therapeutic alliance was initially rated to be a 95, which is indicative of a good therapeutic working alliance (see Figure 11). During the second session, there was a

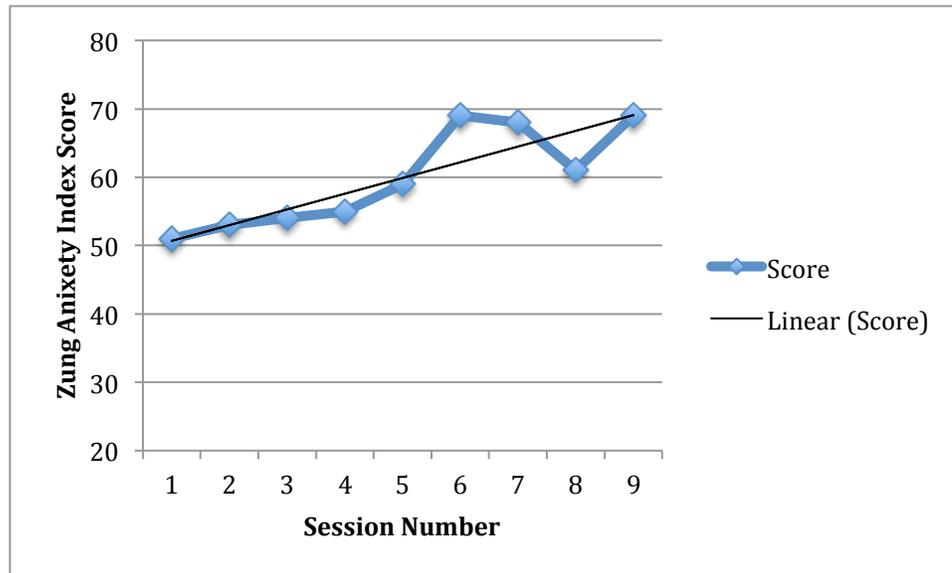
decrease in therapeutic alliance (to 80 points). Subsequently, the participant ratings were between 82 to 97. The trend line shows a slight increase in therapeutic alliance throughout treatment with a slope of 0.23. Additionally, Participant 5 had an average HAQ-II rating of 4.9 out of 6 points. This is consistent with a good therapeutic working alliance.

Figure 11. *Participant 5 HAQ-II Scores: Repeated Measure of Therapeutic Alliance*



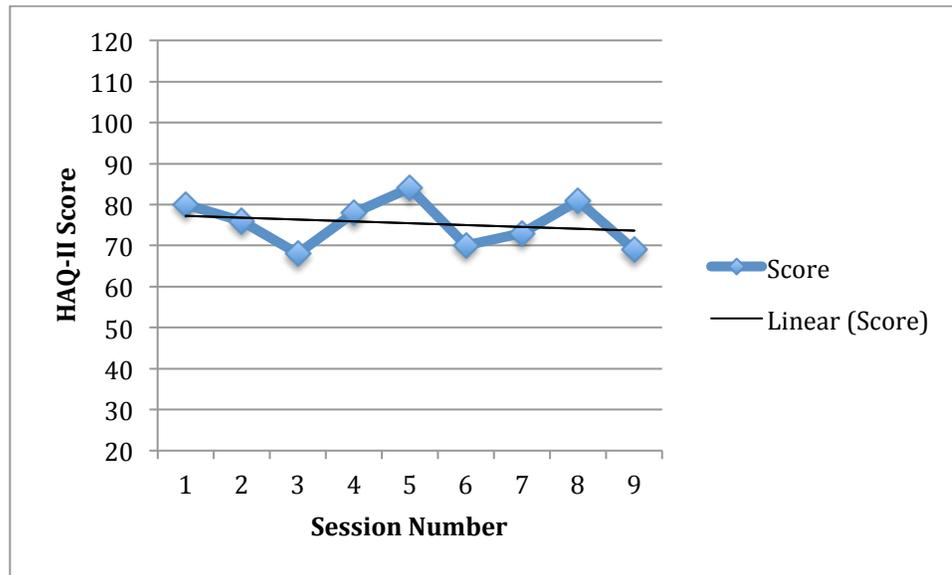
Participant 6. This participant was a male, eleven years old, and in sixth grade.

According to the baseline measure on the Zung, Participant 6's anxiety index score of 51 indicated he began treatment with minimal to moderate levels of anxiety (see Figure 12). There is a steady increase in anxiety from sessions 1 to 4 and a sharp increase during session 6. This brought his anxiety up to a 69, which is indicative of marked to severe anxiety. His self-reported anxiety remained high throughout the remainder of treatment. Overall, the trend line depicts an increase in anxiety with a slope of 2.30.

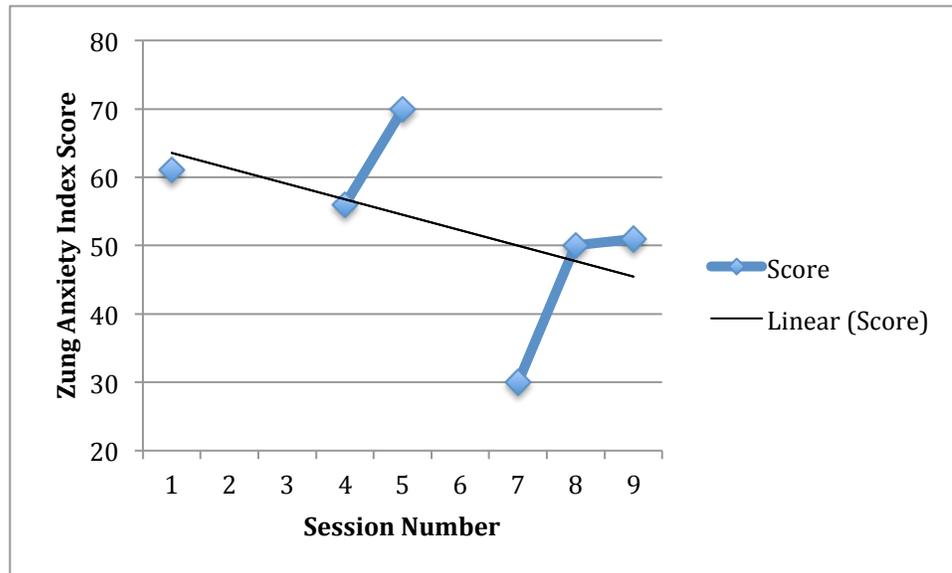
Figure 12. *Participant 6 Zung Scores: Repeated Measure of Anxiety*

According to the SCARED measure, Participant 6 rated his initial anxiety to be a 31. This is above the cut-off of 25 and consistent with a possible diagnosis of anxiety. At the end of treatment, Participant 6 rated his anxiety to be a 39 using the SCARED. This is an 8-point increase (see Table 2). This increase in anxiety is consistent with reported anxiety on the Zung.

Results of a repeated measure of therapeutic alliance showed that therapeutic alliance began with an HAQ-II score of 80 (see Figure 13). This is below what is considered good working alliance, since it is under the cut-off score of 86. Throughout treatment, Participant 6 rated his perception of his relationship with his therapist to fluctuate with a high of 84 and a low of 68 points. The trend line shows a slight decrease in therapeutic working alliance throughout treatment with a slope of -0.45. Likewise, the participant's average HAQ-II rating of 3.9 is between a neutral and slightly favorable perception of his relationship with his therapist.

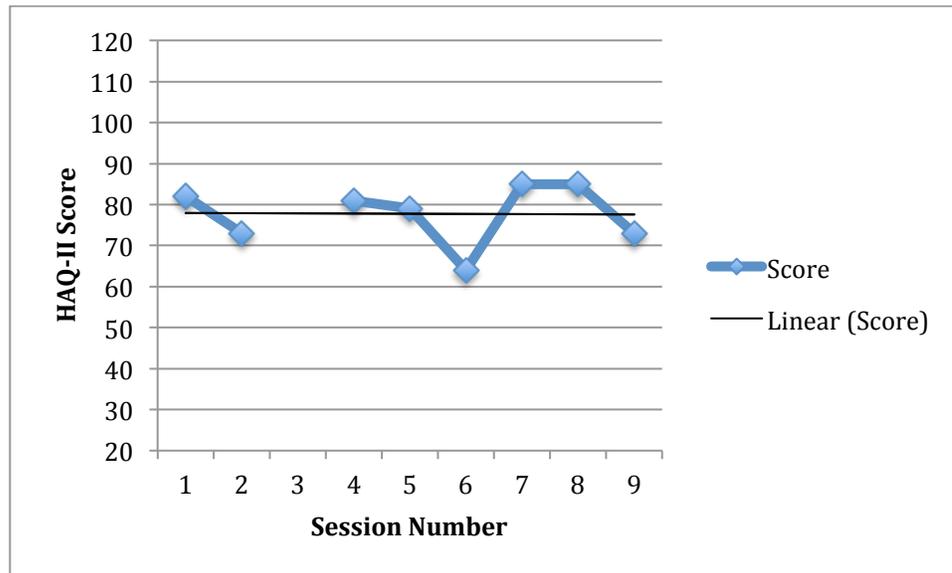
Figure 13. *Participant 6 HAQ-II Scores: Repeated Measure of Therapeutic Alliance*

Participant 7. This participant was female, eleven years old, and in the fifth grade. Her baseline Zung score of 61 points indicated marked to severe anxiety (see Figure 14). As the graph shows, this participant was absent for sessions 2, 3, and 6. In session 5, the participant reported an increase of anxiety from 56 to 70 points. Additionally, in session 7, there was a sharp decrease in anxiety from 70 to 30 points. As Figure 14 depicts, there is great variability in this participant's scores. Overall, the trend line shows a decrease in anxiety with a slope of -2.26.

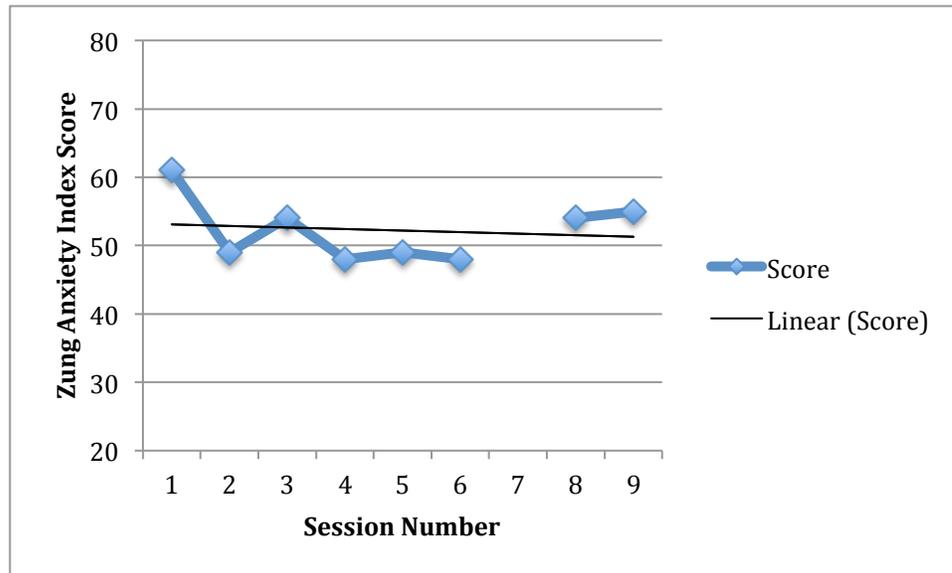
Figure 14. *Participant 7 Zung Scores: Repeated Measure of Anxiety*

Participant 7 reported a pre-treatment SCARED score of 39. This is above the cut-off for possible anxiety. Participant 7 reported a post-treatment SCARED score of 53. This is a 14-point increase in anxiety (see Table 2). This contrasts the Zung anxiety measure used throughout treatment. In other words, there were some inconsistencies in reported anxiety.

For Participant 7, therapeutic alliance was initially rated an 82 using the HAQ-II (see Figure 15). This is below the good working alliance cut-off score of 86. Throughout treatment, this score remains relatively stable. However, in session 6, there is a drop to 64 points. Overall, the trend line shows Participant 7 perceived the therapeutic working alliance with her therapist to be stable near the cut-off for good working alliance with a slope of -0.05. Additionally, her average HAQ-II rating of 4.2 is consistent with a slightly good therapeutic working alliance.

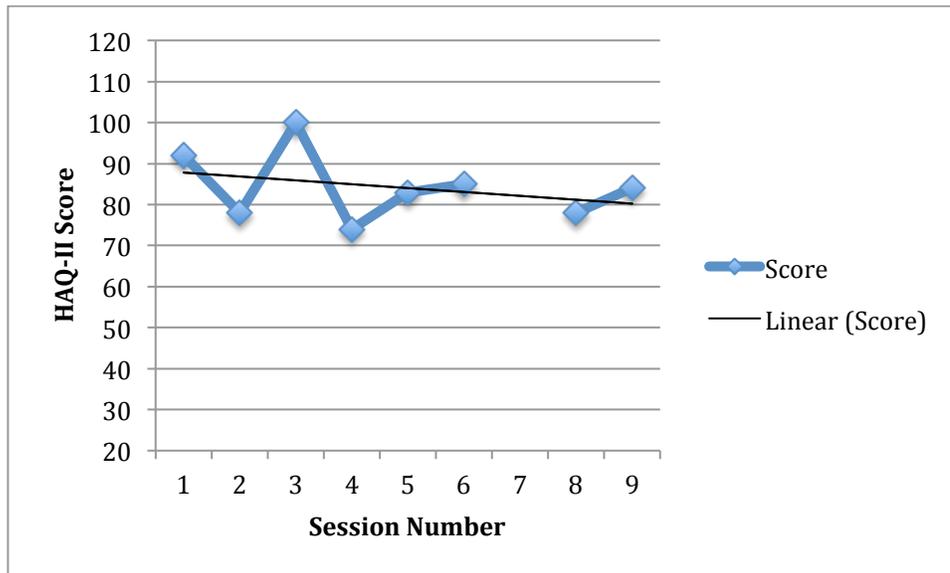
Figure 15. *Participant 7 HAQ-II Scores: Repeated Measure of Therapeutic Alliance*

Participant 8. This participant is male, ten years old, and in fifth grade. Initially, Participant 8 scored 61 points on the Zung (see Figure 16). This is indicative of marked to severe anxiety. After baseline, there is a decrease in anxiety to 49 points. This categorizes Participant 8's score in the minimal to moderate anxiety range. His score remained between 48 to 55 throughout the remainder of treatment. As the graph shows, this participant was absent for session 7. Overall, the trend line shows a slight decrease in anxiety throughout treatment with a slope of -0.23.

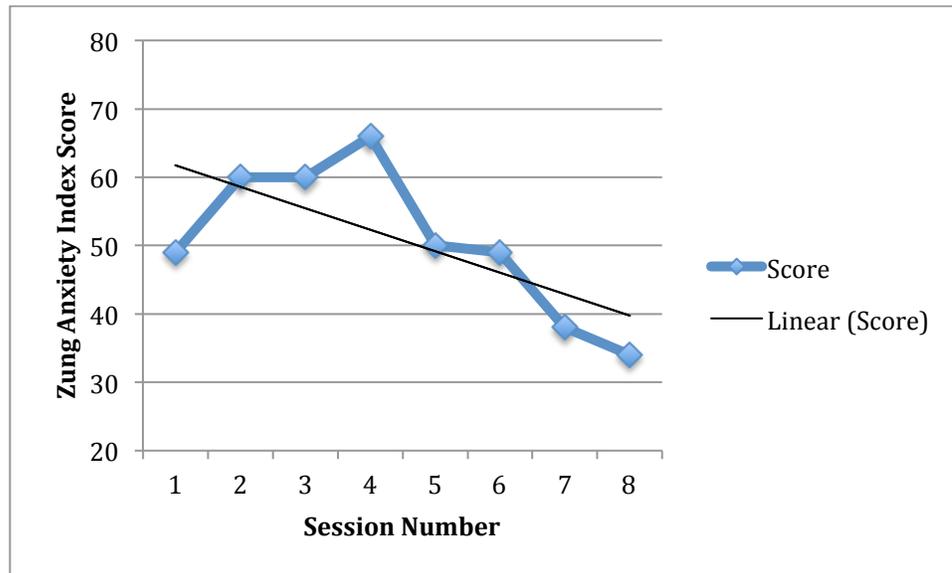
Figure 16. *Participant 8 Zung Scores: Repeated Measure of Anxiety*

Participant 8 reported a pre-treatment SCARED score of 36. This is above the cut-off for possible anxiety. Participant 8 reported a post-treatment SCARED score of 27. This is an 11-point decrease in anxiety and is consistent with Zung data (see Table 2).

According to self-reports, Participant 8 reported good therapeutic alliance with a HAQ-II total score of 92 (see Figure 17). This score varies between 74 to 100 throughout treatment. This indicates the client perceived having better therapeutic alliance on some days. Of note, the participant was absent for session 7. Overall, there is a trend of slightly decreasing therapeutic alliance with a slope of -0.95. Participant 8 had an average HAQ-II rating of 4.5 which means he typically viewed his relationship with his therapist as favorable.

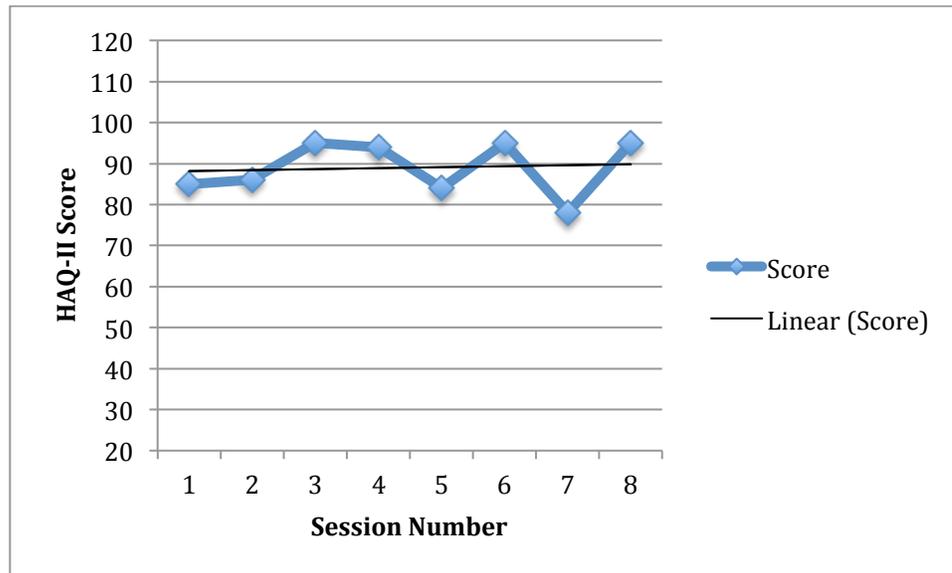
Figure 17. *Participant 8 HAQ-II Scores: Repeated Measure of Therapeutic Alliance*

Participant 9. This participant is male, fourteen years old, and in eighth grade. His baseline Zung score of 48 is in the minimal to moderate anxiety range (see Figure 18). Following baseline, there was an increase in anxiety until session 4, when his reported anxiety index score peaked at 66. This is indicative of marked to severe anxiety. After this, he reported a steady decrease in anxiety symptoms with his last score of 34 being within the normal range. Overall, the trend line depicts a decrease in anxiety symptoms across treatment with a slope of -3.14. Of note, he was absent for session 9.

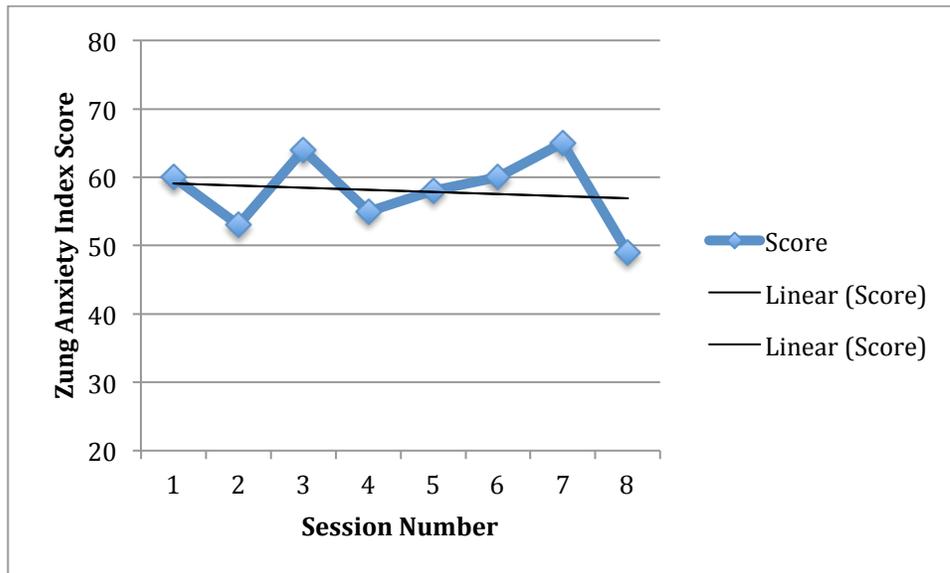
Figure 18. *Participant 9 Zung Scores: Repeated Measure of Anxiety*

Participant 9 reported a pre-treatment SCARED score of 29. This is above the cut-off for possible anxiety. He reported a post-treatment SCARED score of 19. This is a 10-point decrease in anxiety and consistent with Zung data (see Table 2). Both Zung and SCARED data show Participant 9 reached subclinical anxiety levels by the eighth session.

According to self-reports, Participant 9's HAQ-II score of 85 is just below the 86-point cut-off indicative of good working alliance (see Figure 19). The therapeutic alliance scores remained relatively stable between 84 to 95 points throughout treatment. During session 7, there was a drop from 95 to 78 points. Overall, the trend line shows therapeutic alliance increased slightly throughout treatment with a slope of 0.24. Participant 8 had an average HAQ-II rating of 4.5, which means he typically viewed his relationship with his therapist as favorable.

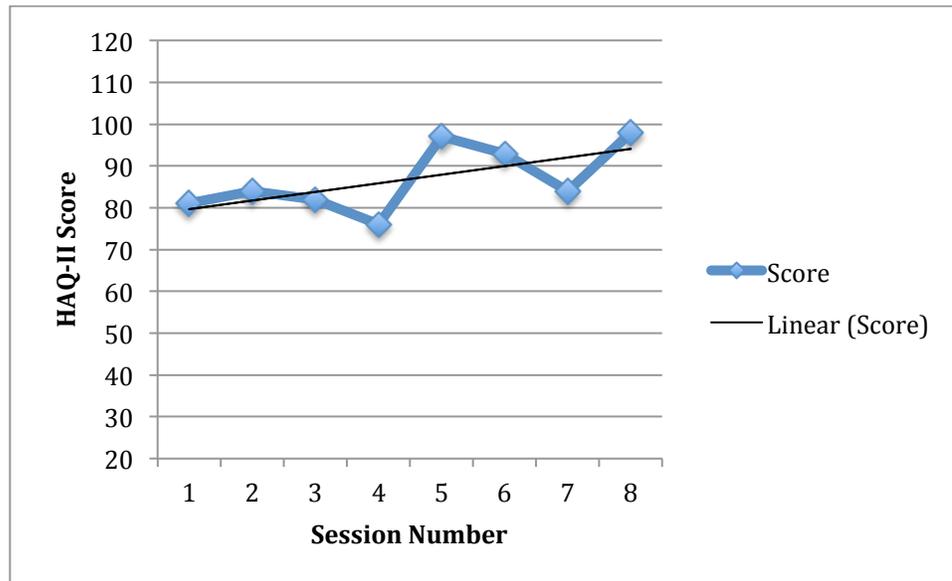
Figure 19. *Participant 9 HAQ-II Scores: Repeated Measure of Therapeutic Alliance*

Participant 10. This participant is male, fourteen years old, and in eighth grade. His baseline Zung score of 60 is in the marked to severe anxiety range (see Figure 20). The Zung measure showed relatively stable scores ranging from 53 to 65 points between sessions 2 to 7. In session 8, there was a drop in anxiety to 49 points. This is indicative of minimal to moderate levels of anxiety. Participant 10 was absent for session 9. Overall, the trend line showed a decrease in anxiety symptoms with a slope of -0.31.

Figure 20. *Participant 10 Zung Scores: Repeated Measure of Anxiety*

Participant 10 reported a pre-treatment SCARED score of 26. This is above the cut-off for possible anxiety. He reported a post-treatment SCARED score of 30. This is a 4-point increase in anxiety (see Table 2). This is slightly different from the Zung scores, which indicated a decrease in anxiety.

Participant 10 reported a baseline measure of therapeutic working alliance to be a HAQ-II score of 81 (see Figure 21). This is slightly below the cut-off for good working alliance. However, the trend line showed therapeutic alliance increased throughout treatment with a jump from 76 to 97 between sessions 4 to 5. The slope was 2.06. Additionally, the participant's average HAQ-II rating was 4.6, indicating he often saw his relationship with his therapist as favorable.

Figure 21. *Participant 10 HAQ-II Scores: Repeated Measure of Therapeutic Alliance*

General Observations and Comments

The following information provides general concluding observations and comments regarding treatment group differences using the single-subject design data.

Repeated measure of anxiety (Zung Assessment). The trend lines on the Zung Self-Assessments show that participants from both treatment groups benefited from their respective treatments some of the time. The CBT only group and the CBT + AAT group had two out of four and four out of six participants, respectively, who decreased their anxiety with treatment.

Pre- and post-treatment measure of anxiety (SCARED). Approximately half of the participants in each condition reported a decrease in anxiety between pre- and post-treatment. While the groups were uneven, the CBT only group ($n = 4$) dropped the most collective anxiety points. However, due to the variance in scores and uneven groups, it is difficult to draw conclusions between conditions for this measure.

Repeated measure of therapeutic alliance (HAQ-II). The trend lines show that both treatment groups reported increases in therapeutic alliance. Additionally, in each condition there was one participant who reported a decrease in therapeutic alliance.

Conclusions. In short, these data supports that there are general decreases in anxiety and increases in therapeutic alliance for many participants regardless of the treatment group in which they participated. Nonparametric statistics were used next to help further analyze this data.

Analysis: Nonparametric Statistics

Nonparametric statistics, the Kruskal-Wallis and Friedman tests, were chosen to determine if there was statistical significance between and within various conditions. Nonparametric statistics were selected over parametric statistics primarily due to the Likert scales used for dependent measures. Additionally, the small sample size in the study and subsequently, the inability to meet the assumption of a normal distribution, called for the use of nonparametric statistics.

The Kruskal-Wallis One-Way Between Subjects analysis of variance was used to determine group differences between participants in the CBT only and CBT + AAT conditions with respect to pre- and post-measures of the SCARED, the Zung Self-Assessment of Anxiety repeated measure, and the HAQ-II repeated measure.

The Friedman One-Way Within Subjects analysis of variance was used to determine differences within each treatment with respect to the same three dependent measures (pre- and post-measures of the SCARED, the Zung Self-Assessment of Anxiety repeated measure, and the HAQ-II repeated measure).

Additionally, the Kruskal-Wallis was used to determine differences between age and the dependent measures. This was done to determine if AAT worked better for older (e.g., 8th grade)

or younger (e.g., 5th grade) populations, which can be useful for future research. Also, the Kruskal-Wallis was used to determine differences between the two school districts used in the study on the dependent measures. This was done to provide more information about any potential group differences between school district responses.

Zung Repeated Measure of Anxiety.

Between Group Comparisons. Differences between the first and last session on measures of anxiety using the Zung Self-Assessment of Anxiety scale are displayed in Table 3. The CBT only treatment group reported a mean anxiety score of 43.3 in the first session, whereas the CBT + AAT treatment group reported a mean anxiety score of 44.3 in the first session. This is not a significant difference: $\chi^2 (1, N = 10) = .000, p > 1.00$. In other words, the two conditions were homogenous at the start of treatment. For the measure of anxiety after the last session, the CBT only condition had a mean score of 51.3 (an 8 point increase). On the other hand, the CBT + AAT condition had a mean last-session score of 41.5 (a 2.8 point decrease). Differences for the last session's reported anxiety were also not significant: $\chi^2 (1, N = 10) = 1.944, p > .163$.

The slopes (see Table 4) created by the trend lines for each participants' Zung scores were compared between the treatment groups to determine if there were differences in the level of change throughout treatment. The CBT only treatment group had a mean slope of 1.39, whereas the CBT + AAT group had a mean slope of -0.47. Overall, the CBT + AAT group saw a decrease in reported anxiety, whereas the CBT only group saw an increase. Still, this was not a significant difference: $\chi^2 (1, N = 10) = 1.636, p > .201$.

Within Group Comparisons. The Friedman Test was used to determine if there were differences in reported anxiety between the first and second session (see Table 5). This was done to detect any significant changes at the start of treatment. The CBT only group had a mean

Zung score of 42.0 in both the first and second session; this was not a significant difference: $\chi^2 (1, N = 3) = .333, p > 0.564$. The CBT + AAT treatment group had a mean Zung score of 43.0 in the first session and 42.0 in the second session; this was not a significant difference: $\chi^2 (1, N = 5) = .200, p > 0.655$.

The Friedman Test was also used to determine if there were differences in reported anxiety between the first and fourth session (see Table 5). This was done to detect differences between the start and mid-way through treatment. The CBT only group had a mean Zung score of 42.0 in both the first and fourth sessions, this is not a significant difference: $\chi^2 (1, N = 3) = .333, p > 0.564$. The CBT + AAT group had a mean Zung score of 44.3 in the first session and 44.7 in the fourth session; this is not a significant difference: $\chi^2 (1, N = 6) = .000, p > 1.00$.

Finally, the Friedman Test was used to determine if there were differences in reported anxiety between the first and last sessions (see Table 5). This was done to detect changes from the start and end of treatment. The CBT only group had a mean Zung score of 42.0 in the first session and 48.3 in the last session, this is not a significant difference: $\chi^2 (1, N = 3) = .333, p > 0.564$. The CBT + AAT group had a mean Zung score of 44.3 in the first session and 41.5 in the last session, this is not a significant difference: $\chi^2 (1, N = 6) = .667, p > 0.414$.

SCARED Pre- and Post-Measure of Anxiety.

Between Group Comparisons. Differences between pre- and post-measures of anxiety (using the SCARED inventory) are displayed in Table 6. The CBT only condition began with a mean anxiety score of 35.8 and the CBT + AAT condition began with a mean anxiety score of 33.8. This is not a significant difference: $\chi^2 (1, N = 10) = .067, p > 0.795$. In other words, the two conditions were homogenous at the start of treatment. For the post-measures of anxiety, the CBT only condition had a mean score of 27.6 (an 8.2 point decrease). On the other hand, the

CBT + AAT condition had a mean post-measure score of 36.5 (a 2.7 point increase).

Differences for the post-measure of anxiety were also not significant: $\chi^2(1, N = 9) = 1.076, p > .300$. Overall, according to the SCARED measure, the CBT only treatment saw a decrease in anxiety and the CBT + AAT treatment saw an increase in anxiety. These differences contrast previous Zung findings; however, it is important to keep in mind that neither of the differences were statistically significant.

Within Group Differences. To determine statistically significant differences within participant scores, the Friedman test was used (see Table 7). Within the CBT only condition, there was a pre-test mean of 41.0 and a post-test mean of 27.7. This is not a significant difference: $\chi^2(1, N = 3) = .333, p > 0.564$. In the CBT + AAT condition, there was a pre-test mean of 33.8 and a post-test mean of 36.5. This is a not a significant difference: $\chi^2(1, N = 6) = .067, p > 0.414$. In other words, there were no significant within-group differences in pre- and post-measure of anxiety.

HAQ-II Repeated Measure of Therapeutic Alliance.

Between Group Comparisons. Differences between the first and last session's measures of therapeutic alliance (using the HAQ-II) are displayed in Table 8. The CBT only condition began with a mean therapeutic alliance score of 91.0 and the CBT + AAT condition began with a mean therapeutic alliance score of 85.8. This is not a significant difference: $\chi^2(1, N = 8) = .028, p > 0.867$. In other words, the two conditions were homogenous at the start of treatment. For the last session's rating of therapeutic alliance, the CBT only condition had a mean score of 91.5 (a 0.5 point increase). On the other hand, the CBT + AAT condition had a mean post-measure score of 85.8 (a 0 point increase or decrease). Differences for the last session's measures of therapeutic alliance were also not significant: $\chi^2(1, N = 10) = .926, p > .336$.

The slopes (see Table 4) created by the trend lines for each participant's HAQ-II score were compared between the treatment groups to determine if there were differences in the rate of change throughout treatment. The CBT only treatment group had a mean slope of 1.12, whereas the CBT + AAT group had a mean slope of 0.18. This was not a significant difference: $\chi^2(1, N = 10) = .727, p > .394$. Counter to expectations, the CBT only treatment was no different from the CBT + AAT group on measures of therapeutic alliance.

Within Group Comparisons. The Friedman Test was used to determine if there were differences in reported therapeutic alliance between the first and second session (see Table 9). This was done to detect any changes in therapeutic alliance at the start of treatment. The CBT only group had a mean HAQ-II score of 85.0 in the first and 78.5 in the second session; this was not a significant difference: $\chi^2(1, N = 3) = 2.00, p > 0.157$. The CBT + AAT treatment group had a mean HAQ-II score of 85.8 in the first session and 79.5 in the second session; this was not a significant difference: $\chi^2(1, N = 6) = .667, p > 0.414$.

The Friedman Test was also used to determine if there were differences in reported therapeutic alliance between the first and fourth session (Table 9). This was done to detect any changes in therapeutic alliance between the start and midway through treatment. The CBT only group had a mean HAQ-II score of 85.0 in the first session and 83 in the fourth sessions, this is not a significant difference: $\chi^2(1, N = 2) = 1.000, p > 0.317$. The CBT + AAT treatment group had a mean HAQ-II score of 85.8 in the first session and 83.3 in the fourth session; this was not a significant difference: $\chi^2(1, N = 6) = .667, p > 0.414$.

Finally, the Friedman Test was used to determine if there were differences in reported therapeutic alliance between the first and last sessions (see Table 9). This was done to detect any changes in therapeutic alliance between the start and end of treatment. The CBT only group had

a mean HAQ-II score of 85.0 in the first session and 81.0 in the last session, this is not a significant difference: $\chi^2 (1, N = 2) = 1.000, p > 0.317$. The CBT + AAT group had a mean HAQ-II score of 85.8 in the first and last session, this is not a significant difference: $\chi^2 (1, N = 6) = .000, p > 1.000$.

Other Variables of Interest. To determine if age was a contributing factor in how students responded to the pre- and post-measure of anxiety (i.e., SCARED), the Kruskal Wallis test was used to analyze SCARED pre- and post-measure scores by age (see Table 10). Neither pre-test ($\chi^2 (3, N = 10) = 1.211, p > .750$) nor post-test ($\chi^2 (3, N = 9) = 5.916, p > .116$) were significant. In other words, age did not appear to contribute to differences on how participants responded to the pre- and post-measure.

To determine if the two school districts used in the study were homogenous samples in regard to anxiety, the SCARED pre- and post-measure of anxiety were examined by school district (see Table 11). It was found that School District A had a mean pre-test score of 41.8, whereas School District B had a mean score of 23.8. This was found to be a statistically significant difference: $\chi^2 (1, N = 10) = 6.585, p > .01$. At the end of the study, the mean SCARED scores were 37.8 for School District A and 25.0 for School District B. The post-measure of anxiety was found not to be significant between schools: $\chi^2 (1, N = 9) = 2.840, p > .092$.

To determine if the two school districts used in the study were homogenous samples in regard to therapeutic alliance, the first and last measures of therapeutic alliance were examined by school district. It was found that School District A had a mean first session HAQ-II score of 86.5, whereas School District B had a mean score of 90 (see Table 12). This was not a significant difference: $\chi^2 (1, N = 8) = .253, p > 0.615$. At the end of the study, the mean HAQ-II

scores for the last session were 90 for School District A and 99.3 for School District B. This was a significant difference: $\chi^2 (1, N = 10) = 5.534, p > 0.019$. In other words, at the end of the study, School District B reported significantly higher ratings of therapeutic alliance than School District A.

Chapter 6

Discussion

Review of the Current Study

Treatment. This study utilized two treatment groups (i.e., CBT only and CBT + AAT) that followed a treatment protocol for anxiety. Both groups followed a shortened and revised version of the C.A.T. Project CBT manual, and the CBT + AAT condition systematically incorporated a dog into their therapy groups. Students in two school districts participated in the study. Two facilitators at each district worked together to run one of each type of treatment. Ten participants were students, ages 10 to 15, who met study entry criteria for possibly experiencing an anxiety disorder.

Hypotheses. There were two primary hypotheses for this study: (1) Combined AAT and CBT would improve self-reports of anxiety symptoms at a greater rate than CBT alone, and (2) Combined AAT and CBT would have greater ratings of therapeutic alliance as reported by the students.

Important Findings

Findings on Anxiety. To answer the question: Does combined AAT and CBT improve self-reports of anxiety symptoms at a greater level than CBT alone, slopes were generated for each participant's Zung scores across sessions. No significant differences were found between the CBT only and CBT + AAT treatment groups on changes in anxiety.

In each group, some of the participants appeared to benefit from treatment while others appeared to have worsened anxiety. This was unexpected considering the wealth of research suggesting that CBT is the frontline treatment for anxiety (Heuzenroeder et al., 2004; Hofmann et al., 2014; Ishikawa et al., 2007). It was expected that all participants would have benefited

from treatment regardless of the treatment group in which they participated.

It is possible that this was due to the shortened nature of the current study. The original CBT manual requires 16 sessions, whereas the shortened and revised version designed for use in schools for this study were only 9 sessions. Adding to this, participants sometimes missed sessions due to absences from school, leading them to participate in even fewer sessions.

Additionally, in this type of anxiety treatment, there may be a curvilinear relationship wherein anxiety increases at the start of treatment, peaks, and then decreases near the end of treatment. For example, Participant 9 showed this trend in his or her reported anxiety across sessions. This may be due to awareness of anxiety and initial exposures to anxiety-provoking situations causing more anxiety. Then, after the client has learned to cope with anxiety and become more confident with using their newly learned coping skills, their anxiety finally decreases.

Another possible reason CBT was ineffective for this population may have been the time of the year the study was conducted. It was the last two to three months of the school year. This is a time when students might have had heightened anxiety or might not have been focused on practicing their coping skills or completing homework outside of session due to extra school requirements to prepare for state testing. One facilitator alluded to this conflict by mentioning that students were not completing homework activities at home, thus requiring extra time to complete them during session. Furthermore, schools tend to become lax the last one to two weeks of the school year (e.g., school assemblies or parties are happening, less structured learning time, no homework). This may have contributed to a sense of being finished or “checked out” prior to the study’s completion.

Findings on Therapeutic Alliance. To answer the question: Does combined AAT and CBT have greater ratings of therapeutic alliance as reported by the students, slopes and pre- and post-measures of therapeutic alliance were analyzed.

Generally, there were no significant differences between the CBT only and CBT + AAT treatment groups on measures of therapeutic alliance. Research suggests that the main benefit of AAT is that it enhances the therapeutic relationship (Black et al., 2011). Furthermore, Minatrea and Wesley (2008) found that animal-assisted therapy as an adjunct to substance abuse counseling did contribute to significantly higher therapeutic alliance scores on the HAQ-II. However, the current study found that AAT did not enhance therapeutic alliance beyond CBT treatment alone. Both groups showed positive slopes, indicating therapeutic alliance did increase for both treatment groups, even though it started rather high.

There are a couple of reasons that might explain why therapeutic alliance was similar across both groups, rather than greater for the AAT group. First, students may have already had relationships with their facilitators. All facilitators were working in the school district prior to the start of the study. Most of the participants were identified by the facilitator as having problems with anxiety during the recruitment phase of the study. It is likely that if these students were previously identified as having problems with anxiety, they would have met their school psychologist, counselor, or social worker prior to the study.

Second, both groups allowed for rapport building time in the first session. So, even if students did not know their facilitators well prior to the study, it is possible the rapport building activities allowed adequate time for both groups to develop a good therapeutic alliance. Most therapeutic alliance scores met the cut-off for “good therapeutic alliance,” which was expected and hoped for as a crucial aspect of therapy. In the current study, the dog did not appear to

influence that score. However, no significant difference between the groups shows that the dog does not harm the therapeutic relationship.

Other Findings

Previous research suggests that AAT may be particularly useful for younger participants (Black et al., 2011), however, this study found no differences between post-treatment outcomes due to age. It is possible that the age range of this study (10 to 15) did not include children young enough to show a difference in reporting. Additionally, only one school district's treatment group included children ages 10 to 11, so there might not have been enough power for this to be a strong factor.

The school districts were also compared to determine if there were differences between how participants from either school district answered questions. There were no differences on measures of anxiety; however, it was found that therapeutic alliance was significantly higher for School District B at the end of treatment. School District B was an alternative school with more flexibility in their schedule. It is possible that participants felt less rushed in this setting. Facilitators reported spending a full hour (sometimes going over) for each of their sessions in School District B, whereas School District A reported they were confined to a shorter time schedule.

Limitations of the Current Study

Recruitment factors. There were a number of difficulties that arose in the recruitment of qualified facilitators and participants. This study obtained contacts for those who were using therapy dogs in schools through local therapy dog organizations as well as through national contacts that were volunteered during conferences. However, a majority of these contacts were teachers and special education staff who did not have the required credentials for the study (e.g.,

a Masters degree in social work, counseling, or psychology). Out of an original contact list of approximately 50 potential facilitators, only three had the appropriate credentials and were able to participate. After the recruitment period, only two facilitators went on to complete the study.

Study factors. There were a few aspects of the study that did not go as planned during the implementation phase. To begin, the intervention protocol contained too many activities for facilitators to complete in one hour. For the first one to two sessions, facilitators reported either extending the session 15 minutes past one hour or saving activities for later sessions. The facilitators and author decided to push unfinished activities to later sessions with the expectation that later sessions would have more time because they had less activities planned. However, by the third session, the facilitators and author agreed that some extra practice tasks needed to be removed from the protocol so that the facilitators would be able to focus on essential activities (e.g., psychoeducation and exposure tasks). The facilitators worked closely with the author to select activities that were deemed non-essential (e.g., homework and extra-practice). It is important to note that due to this, not every session was exactly the same. In other words, groups ended sessions at different points of the protocol depending on time constraints and fluidity of the session. In short, this impacted the standardization between treatment groups and school districts.

Next, the only measures used in the current study were rating scales completed by participants. Although rating scales can provide important insight into the individual's perceptions and feelings, they are inherently biased and apt to fatigue. This is specifically a concern for the repeated measures (i.e., Zung and HAQ-II) because participants might have felt bored with completing the same rating scales every week.

Moreover, some facilitators reported the rating scales used in the study were difficult for students to understand. This was especially true for the younger students. Facilitators reported explaining the rating scales to the students; however, students continued to have a difficulty understanding some of the statements (e.g., “the therapist and I sometimes have unprofitable exchanges”). Facilitators reported concern that students may not have answered the rating scales accurately due to misunderstanding. It is possible that this impacted the study by leading to inaccurate reporting of anxiety symptoms and therapeutic alliance.

Furthermore, the rating scales were estimated to take five minutes to complete; however, facilitators reported it took students 10 to 15 minutes to complete each week. This impacted the study by taking away time for the intervention and might have contributed to fatigue or feeling rushed to complete the scales.

Finally, as part of the nature of any single-subject design, there are limitations with generalizability. This sample of ten students were characterized as being between 10 to 15 years old, mostly White and non-Hispanic/Latino, and either not classified as receiving special education services or classified as learning disabled. Additionally, the study was conducted in rural school settings. As a result, it is difficult to say if these findings would generalize to other populations of students or in an urban or clinical setting.

School district factors. There were some differences in the make up of the schools and students that participated in the study. One school was a traditional middle school for grades fifth through eighth. The second school was an alternative school designed for students requiring a smaller class size and more individualized instruction than can be provided at a traditional school to help them learn. Additionally, most of the students at the alternative school were classified as having a Specific Learning Disability. Ideally, these students would have been

mixed between the two school districts and among the treatment groups equally. Furthermore, the alternative school was designed to allow time in students' schedules for counseling or other related services. This affected the current study because School District A was confined to 30 to 45 minute sessions, while School District B was able to meet for one hour. Therefore, students in School District B were permitted more time to learn and practice coping skills and bond with their therapist and peers.

Another effect of the time constraints in the traditional school setting was that School District A was unable to randomize participants into treatment conditions. This group scheduled participants based on their free period and grade. As a result, there were more participants in the "CBT + AAT" condition than the "CBT only" condition.

Similarly, the nature of conducting research in schools includes managing a schedule around school breaks. During this study, school breaks (e.g., spring break) paused the groups for up to one week at a time. It is possible that participants may have regressed or forgot what they had learned the week prior and they might not have had continuity in practicing skills during that week. This may have contributed to fluctuations in self-report measures of anxiety.

Next, school districts had some requirements that needed to be met in order to conduct the study in their buildings. To begin, School District A required at least two participants in each group to make the time commitment from facilitators worth it. In order to recruit more participants and fulfill this requirement, the original age range (13 to 17) was expanded to include children as young as 10. This impacted the study because the intervention and measures used were designed for adolescents as young as 13. Some of the material covered may have been too complex for these students to understand and benefit from (e.g., changing thoughts or cognitions). Additionally, facilitators reported that the younger participants experienced

difficulty understanding the rating scales. Together, this may have impacted the amount of change in anxiety or therapeutic alliance reported and observed in the study.

Finally, both school districts prohibited payment to facilitators because they were conducting the groups as part of their job responsibility during school hours. The payment was set in place to encourage fidelity and to motivate the facilitators. It is difficult to know if taking the payment away impacted this. An attempt at reconciling this was made by submitting donations (equal to the original payment agreement) to local therapy dog organizations or to the school's therapy dog program on the behalf of the facilitators.

Participant factors. Difficulties in recruiting participants contributed to the low number of participants in this study. Facilitators originally pulled a list of potential participants from their counseling caseload. These were students who were known to have anxiety and expected to benefit most from the program. However, most of these potential participants either did not return parent consent forms or did not provide individual assent to participate. According to facilitators, some of the students reported fear of confronting their anxiety and doing so within a group of their peers. Despite facilitators' attempts to reach out to teachers and gain other potential participants, the overall participant numbers remained low. This contributed to lower power and the decision to use nonparametric statistics for this study.

Of the participants who participated in the study, facilitators reported that they appeared to enjoy coming to group. However, there were some exceptions to this. Toward the end of the study, facilitators reported a few of the participants were upset that they needed to come to group because they were missing specials. This may have impacted their attention and participation during group.

Future Research

Recruitment. Recruiting facilitators to conduct the study groups was particularly difficult due to the limited number of certified school counselors, psychologists, and social workers using dogs in schools. Future researchers will want to consider reaching out to local and national therapy dog organizations to recruit facilitators through their listserv databases. This may result in acquiring more facilitators (and thus more participants) for therapy dog research.

To further help the number of participants in the study, future researchers should consider building rapport with students and their parents in order to obtain consent/assent. Doing so may help parents and students feel more comfortable signing up for treatment and it will allow school personnel a chance to answer any questions parents and students may have.

Also, conducting the study at the beginning of the school year may result in more participants. At the start of the school year, students are in the habit of new things starting again. Furthermore, they are likely less busy with academics (e.g., studying for state tests or end-of-year projects) and can contribute more time and energy to therapy. Moreover, students and therapists might feel more at ease knowing there is extra time to move along at the student's pace.

Additionally, the current study revealed participants had some concern about sharing anxious feelings with a group of peers. Future studies may wish to use individual therapy, rather than group therapy, if they are working with a similar population of students. Adolescents may feel more embarrassed about sharing information about their anxiety to a group of peers than children or adults due to their developmental level.

Intervention. To help improve implementation of the intervention, future studies should caution against including too many activities during sessions. Having fewer activities allows

more time for connecting with the therapist, bonding with the dog, understanding psychoeducational concepts, and practicing skills. It also allows flexibility for therapists to pace sessions at their discretion, and may ultimately lead to better outcomes for students.

Additionally, this study found differences in therapeutic alliance at the end of the study between the traditional and alternative schools. Future studies may consider looking at factors that may contribute to this. For example, did a schedule that included time for counseling help students feel less overwhelmed because they were not missing activities or being assigned extra work? Or, did having a full hour versus 30 minutes contribute to better therapeutic alliance?

Measures. Future research should include a variety of dependent measures, rather than exclusively using self-report rating scales. Other options to consider are parent and therapist rating scales. Future researchers may prevent fatigue by limiting the number of questions on rating scales and by having participants complete them at the beginning, middle, and end of the study rather than after each session. Additionally, two to three observers and inter-rater reliability measures can be used as an outside measure of observable behaviors in session. For example, these behaviors could measure overt anxiety symptoms (e.g., blushing) or aspects of the therapeutic relationship (e.g., smiling at their therapist).

Implications for Future Practice

The current study revealed CBT and CBT + AAT treatment in schools was beneficial for some adolescents in decreasing anxiety symptoms. Moreover, the protocol that was developed showed that a dog could be added to CBT treatment and can be similarly effective. It will be important for schools to find students who are invested in improving their anxiety symptoms and who are age-appropriate for the CBT treatment being used. This can help contribute to better outcomes for students.

Next, adolescents in schools receiving CBT or CBT + AAT treatment reported good therapeutic alliance with their therapist. Students benefited from having treatment in schools by building relationships with their school psychologist, counselor, or social worker. This helps them feel more connected to their school, which may contribute to improvements in emotional and academic functioning.

Overall, school districts will be particularly interested in knowing that the therapy dog did not cause harm; there was no significant increase in anxiety symptoms or decrease in therapeutic alliance. This is similar to findings from researchers, Hunt and Chizkov (2014), who found therapy dogs did not interfere with emotional processing. Some might be concerned that therapy dogs may be a distraction to students or take away from the relationship with their therapist; however, this study shows this is not the case.

Finally, the study showed that treatment could work in traditional and alternative school settings. There are differences in logistically scheduling and delivering treatment; however, this did not impact the outcomes on anxiety. On the other hand, this may have contributed to the greater therapeutic alliance found at the alternative school at the end of treatment. Practitioners should know that flexibility in scheduling students and spending more time with the therapist (and canine co-therapist) may have contributed to greater alliance.

Conclusion

The current study explored the additive effects of therapy dogs to a frontline treatment for anxiety with adolescents in schools. This study was designed with methodological rigor including a comparison group, standardization protocols, fidelity monitoring, and well-researched CBT interventions. As a result, this design contributes to the AAT literature base,

which is largely composed of anecdotal evidence and studies without comparison or control groups. Furthermore, it holds a strong methodology within an applied setting (i.e., schools).

Ten participants across two school districts completed the nine-week study. They were placed into either a CBT only or CBT + AAT treatment group conducted by certified school psychologists, counselors, social workers, and therapy dogs in each of the schools. Findings suggest cognitive behavioral therapy and therapy dogs may be beneficial for some students. Although the treatment groups did not approach significance on measures of anxiety and therapeutic alliance, trend lines on repeated measures of these factors show some participants lowered their anxiety and most participants increased their therapeutic alliance. Furthermore, adding a therapy dog to treatment did not harm students on measures of anxiety and therapeutic alliance. This may be particularly helpful to know for those who are concerned therapy dogs can cause a distraction or interfere with the therapy process.

Additionally, this study found no difference in changes on anxiety symptoms between a traditional and alternative school setting. This shows that CBT and therapy dogs can be effective tools in either setting. However, greater therapeutic alliance at the end of the study was found for the alternative school setting. Other factors (e.g., time spent with therapist) may have contributed to this finding.

Moving forward, school districts and practitioners will be interested to know that therapy dogs may be helpful for some adolescents in the school setting. It will be important to continue to be selective in choosing students who may benefit most from this type of treatment (e.g., invested in therapy, no fear of dogs), in order to ensure the best possible outcomes.

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Table 1

Participant Characteristics

Characteristic	CBT Only (n = 4)	CBT + AAT (n = 6)
Gender		
Male	3 (30%)	4 (40%)
Female	1 (10%)	2 (20%)
Race		
White	3 (30%)	6 (60%)
Black/African American	1 (10%)	0 (0%)
Ethnicity		
Hispanic/Latino	0 (0%)	1 (10%)
Non-Hispanic/Latino	4 (40%)	5 (50%)
Age		
10	0 (0%)	1 (10%)
11	0 (0%)	3 (30%)
14	4 (40%)	1 (10%)
15	0 (0%)	1 (10%)
Grade		
5 th	0 (0%)	2 (20%)
6 th	0 (0%)	2 (20%)
8 th	4 (40%)	2 (20%)
Special Education Classification		
Not Applicable	0 (0%)	6 (60%)
Learning Disability	4 (40%)	0 (0%)
Attended Counseling for Anxiety		
Yes	2 (20%)	4 (40%)
No	2 (20%)	2 (20%)
Psychiatric Diagnosis		
Yes	6 (60%)	4 (40%)
Psychiatric Medications		
Yes	6 (60%)	4 (40%)

Table 2

Summary of Participants' Scores on the Screen for Child Anxiety Related Disorders

Treatment	Participant Number	Pre-test Score	Post-test Score	Difference
CBT Only				
	1	53	26	27
	2	50	31	19
	3	20	26	-6
	4	20	-	-
CBT + AAT				
	5	42	51	-9
	6	31	39	-8
	7	39	53	-14
	8	36	27	9
	9	29	19	10
	10	26	30	-4

Table 3

Group Differences Between First and Last Session on Anxiety (ZUNG)

Condition	N	Pre-Test Mean	Post-Test Mean
CBT only	4	43.3	51.3
CBT + AAT	6	44.3	41.5
Significance		1.000	.163

Table 4

Treatment Group Slopes for the Zung and HAQ-II Rating Scales

Condition	Participant Number	Zung Slope	HAQ-II Slope
CBT only	1	-0.18	0.20
	2	-0.99	-0.15
	3	2.83	3.97
	4	3.90	0.40
CBT + AAT	5	0.83	0.23
	6	2.30	-0.45
	7	-2.26	-0.05
	8	-0.23	-0.95
	9	-3.14	0.24
	10	-0.31	2.06

Note. Mean slope for CBT = 1.39; for CBT + AAT = -0.47

Table 5

Session Differences in Zung Scores by Treatment Group

Condition	Session Number (Mean)	X	Session Number (M)	Significance
CBT only	1 (42.0)		2 (42.0)	0.564
			4 (42.0)	0.564
			Last (48.3)	0.564
CBT + AAT	1 (43.0)		2 (42.0)	0.655
			4 (44.7)	1.000
			Last (41.5)	0.414

Table 6

Group Differences Between Pre- and Post-Measure of Anxiety (SCARED)

Condition	N	Pre-Test Mean	Post-Test Mean
CBT only	4	35.8	27.6
CBT + AAT	6	33.8	36.5
Significance		1.000	0.300

Table 7

Within Group Differences in the SCARED Pre- and Post-Measure

Condition	Pre-SCARED score	Post-SCARED score	Significance
CBT only	41.0	27.7	0.564
CBT + AAT	33.8	36.5	0.414

Table 8

Group Differences Between First and Last Session on Therapeutic Alliance (HAQ-II)

Condition	N	Pre-Test Mean	Post-Test Mean
CBT only	4	91.0	91.5
CBT + AAT	6	85.8	85.8
Significance		0.867	.336

Table 9

Session Differences in HAQ-II Scores by Treatment Group

Condition	Session Number (Mean)	X	Session Number (M)	Significance
CBT only	1 (85.0)		2 (78.5.0)	0.157
			4 (83.0)	0.317
			Last (81.0)	0.317
CBT + AAT	1 (85.8)		2 (79.5)	0.414
			4 (83.3)	0.414
			Last (85.8)	1.000

Table 10

Age Differences on Pre- and Post-Measures of Anxiety (SCARED)

Age	N	Pre-Test Mean	Post-Test Mean
10	1	36.0	27.0
11	3	37.3	47.7
14	5	34.4	25.5
15	1	26.0	30.0
Significance		.750	.116

Table 11

School District Differences on Pre- and Post-Measures of Anxiety (SCARED)

School	N	Pre-Test Mean	Post-Test Mean
School District A	6	41.8	37.8
School District B	4	23.8	25.0
Significance		.01*	.092

*p < 0.05

Table 12

School District Differences on First and Last Session Measures of Therapeutic Alliance

School District	First Session Mean	Last Session Mean
School District A	86.5	90
School District B	90.0	99.3
Significance	0.615	0.019*

*P > 0.05

APPENDIX A

SCREENER/POST-SURVEY

Number: _____

DATE: _____

Directions: Below is a list of sentences that describe how people feel. Read each phrase and decide if it is “Not true or hardly ever true,” “Somewhat true or sometimes true” or “very true or often true” for you. Then, for each sentence, put an “X” in the box that corresponds to the response that seems to describe you for the last *3 months*.

	0 Not True or Hardly Ever True	1 Somewhat True or Sometimes True	2 Very True or Often True
1. When I feel frightened, it is hard to breathe			
2. I get headaches when I am at school			
3. I don't like to be with people I don't know well			
4. I get scared if I sleep away from home			
5. I worry about other people liking me			
6. When I get frightened, I feel like passing out			
7. I am nervous			
8. I follow my mother or father wherever they go			
9. People tell me that I look nervous			
10. I feel nervous with people I don't know well			
11. I get stomachaches at school			
12. When I get frightened, I feel like I am going crazy			
13. I worry about sleeping alone			
14. I worry about being as good as other kids			
15. When I get frightened, I feel like things are not real			
16. I have nightmares about something bad happening to my parents			
17. I worry about going to school			
18. When I get frightened, my heart beats fast			
19. I get shaky			
20. I have nightmares about something bad happening to me			
21. I worry about things working out for me			
22. When I get frightened, I sweat a lot			
23. I am a worrier			
24. I get really frightened for no reason at all			
25. I am afraid to be alone in the house			
26. It is hard for me to talk with people I don't know			

well			
27. When I get frightened, I feel like I am choking			
28. People tell me that I worry too much			
29. I don't like to be away from my family			
30. I am afraid of having anxiety (or panic) attacks			
31. I worry that something bad might happen to my parents			
32. I feel shy with people I don't know well			
33. I worry about what is going to happen in the future			
34. When I get frightened, I feel like throwing up			
35. I worry about how well I do things			
36. I am scared to go to school			
37. I worry about things that have already happened			
38. When I get frightened, I feel dizzy			
39. I feel nervous when I am with other children or adults and I have to do something while they watch me (for example, read aloud, speak, play a game, or play a sport)			
40. I feel nervous when I am going to parties, dances, or any place where there will be people that I don't know well			
41. I am shy			

----- GROUP LEADER USE ONLY -----

Total: _____

Adapted from: Screen for Child Anxiety Related Disorders—Child Version (2012)

Developed by Boris Birmaher, M.D., Suneeta Khetarpal, M.D., Marlane Cully, M.Ed., David Brent, M.D., and Sandra McKenzie, Ph.D., Western Psychiatric Institute and Clinic, University of Pittsburgh (October, 1995). E-mail: birmaherb@upmc.edu

See: Birmaher, B., Brent, D. A., Chiappetta, L., Bridge, J., Monga, S., & Baugher, M. (1999). Psychometric properties of the Screen for Child Anxiety Related Emotional Disorders (SCARED): a replication study. *Journal of the American Academy of Child and Adolescent Psychiatry*, 38(10),1230–6.

APPENDIX B

Zung Anxiety Assessment Tool

Zung Anxiety Self-Assessment Scale Please answer based on how you have felt in the past week.	None or little of the time	Some of the time	Good part of the time	Most or all of the time
1. I feel more nervous and anxiety than usual				
2. I feel afraid for no reason at all				
3. I get upset easily or feel panicky				
4. I feel like I'm falling apart and going to pieces				
5. I feel that everything is all right and nothing bad will happen				
6. My arms and legs shake and tremble				
7. I am bothered by headaches, neck, and back pains				
8. I feel weak and get tired easily				
9. I feel calm and can sit still easily				
10. I can feel my heart beating fast				
11. I am bothered by dizzy spells				
12. I have fainting spells or feel faint				
13. I can breath in and out easily				
14. I get feelings of numbness and tingling in my fingers and toes				
15. I am bothered by stomachaches or indigestion				
16. I have to empty my bladder often				
17. My hands are usually dry and warm				
18. My face gets hot and blushes				
19. I fall asleep easily and get a good night's rest				
20. I have nightmares				

APPENDIX C

Number: _____

Date: _____

HELPING ALLIANCE QUESTIONNAIRE
Patient Version

INSTRUCTIONS: These are the ways that a person may feel or behave in relation to another person—their therapist. Consider carefully your relationship with your therapist, and then mark each statement according to how strongly you agree or disagree. Please mark every one.

	1 Strongly Disagree	2 Disagree	3 Slightly Disagree	4 Slightly Agree	5 Agree	6 Strongly Agree
1. I feel I can depend upon the therapist						
2. I feel the therapist understands me						
3. I feel the therapist wants me to achieve my goals						
4. At times I distrust the therapist's judgment						
5. I feel I am working together with the therapist in a joint effort						
6. I believe we have similar ideas about the nature of my problems						
7. I generally respect the therapists views about me						
8. The procedures used in my therapy are <u>not</u> well suited to my needs						
9. I like the therapist as a person						
10. In most sessions, the therapist and I find a way to work on my problems together						
11. The therapist relates to me in ways that slow up the progress of therapy						
12. A good relationship has formed with my therapist						
13. The therapist appears to be experienced in helping people						

14. I want very much to work out my problems						
15. The therapist and I have meaningful exchanges						
16. The therapist and I sometimes have unprofitable exchanges						
17. From time to time, we both talk about the same important events of my past						
18. I believe the therapist likes me as a person						
19. At times the therapist seems distant						

APPENDIX D

Sample Nine-Session Protocol

Note. To get information about the C.A.T. Project manual see: Kendall, Choudhury, Hudson, & Webb, 2002. What follows are sections added for dog activities.

**Note about the DOG groups: The dog should always be available during group session (unless they need a break). When students are working on worksheets, the dog should be able to walk around the room or sit with a student or by themselves. Students should be encouraged to call the dog over as long as they are paying attention to instructions when given. The first and last 5 minutes of session should be for students to play with the dog only; on exposure days, students may play with the dog for longer. Anytime you (the therapist) can reflect on the student's or dog's thoughts and feelings in relation of each other, please do so.*

Session 1: PSYCHOEDUCATION

- Build rapport by introducing the dog to everyone in the group during the first 10 minutes of the session. At some point in the first session, each student should have a chance to bond with the dog. This should be done by bringing the dog's toys (e.g., ball for catch) and teaching the student to give the dog simple commands.
- During page 7: Show/discuss ways that the dog will show others he is nervous. **Dog's Positive and Negative Feelings Handout** (this also helps to educate the student on how to work with the dog)

Session 2: PSYCHOEDUCATION

- Introduce petting the dog as a way to relax. The student might want to focus on how the dog feels, the color of the dog's fur, their breathing, etc.
- Ask, what might the dog be thinking right now?

Session 3: SKILLS TRAINING

- Imagine the dog is really nervous because he is meeting a new group of students! What are some coping thoughts that would help him feel better?
- Example of how the counselor trained the dog by giving rewards (specifically name what is reinforcing to the dog: treat, clicker, petting, throwing the ball...) whenever the dog gave some effort toward doing the task, even if it wasn't done completely the first few times.

Session 4: SKILLS TRAINING

- Provide students with something that your dog is afraid of (e.g., thunder). Go through coping skills.
 - Thunder Example:
 - Dog is feeling worried, nervous...
 - Dog is thinking he could get hurt by the thunder (Catastrophe)

- Dog could think, “I’ve never been hurt or watched anyone get hurt by thunder before and I am inside, so I am safe” or “I could prepare for the thunder by laying underneath this bed or table” or “I could sit next to my owner/mom/dad because I know sitting by them will calm me”
- Dog could get pet by owner/mom/dad, spend time watching the rainfall, or go outside and catch rain drops on his tongue.

*Note for DOG group: Sessions 5-9 are exposure tasks. Students should **not** be allowed to use the dog as part of the FEAR plan (they will not always have the dog there and students will outnumber dogs). Students should be allowed to play with dog for the remainder of the session after their exposure task is complete. Play includes toys/games, teaching commands, talking to or petting the dog.*

Session 5: EXPOSURE (simple)

Session 6: EXPOSURE (simple)

Session 7: EXPOSURE (moderate)

Session 8: EXPOSURE (challenging)

Session 9: EXPOSURE (challenging)

Session 10: Informal dog de-stress day for CBT Only group

- The 10th session is for the CBT only group to get a chance to be with the dog.
- Session should last approximately 30 minutes
- No measures or specific guidance on what to do during this session
- Could be used as a “party day” for completing treatment

APPENDIX E

Sample Coping with Anxiety Fidelity Monitoring Tool

CBT + AAT

Date: _____ Session Start Time: _____ Session End Time: _____ Attendance #: _____

Implementation Checklist: *Please check tasks completed during this meeting. If items were not completed or there were adjustments made to standardization, please note the reason below.*

- Introduced dog and allowed time at the beginning of the session for bonding activities
- Dog was available to students throughout the entire session
- Described reactions
- Reviewed homework
- Listed emotional cues
- Discussed physical signs of stress in humans and in dogs
- Introduced identifying the intensity of emotions
- Introduced a plan for using coping skills
- Reviewed homework
- Allowed time at the end of session to bond with dog

To be completed at the end of **every** week, please check:

- Student- HAQ-II Student- Zung Anxiety Assessment

Please list any other notes or feedback on implementation or anything that occurred in the session that you'd like to share:

APPENDIX F

Facilitator Agreement

The Coping with Anxiety program investigates the efficacy of a therapy dog combined with a researched-based program for anxiety. The study is being conducted by school psychology graduate student, Courtney Zents, as part of the culminating project required to receive a psychology doctorate in school psychology. As such, this research is being overseen by a committee of faculty at Alfred University. This research study has been approved by the Human Subjects Research Committee at Alfred University.

You are agreeing to serve as a facilitator for group therapy involving cognitive-behavioral therapy and animal-assisted therapy.

- Getting approval from your school district for facilitating groups and including students. This will require you to come up with a time during the school day that is best for you to work with students.
- Two 1-hour group therapy sessions (may be split into two 30-minute sessions per group) with 3-5 adolescents per week for 9 weeks.
- Following an abbreviated version of the C.A.T. Project manual (therapist and client workbooks provided at the researcher's expense)
- Using a therapy dog in one of the treatment groups following a protocol
- Attending an evening (3.5 hour) training on the C.A.T. Project manual, utilizing animal-assisted therapy in treatment, and the Coping with Anxiety study.
- Recruiting participants by talking with students, teachers, and other mental health professionals about the study.
- Completing the Coping with Anxiety Fidelity Monitoring Tool (checklist) following each session.
- Distributing and collecting Coping with Anxiety brochures, informed consents, demographic information, a pre- and post- treatment questionnaire, and two questionnaires per participant, per session.
- Mailing informed consents and demographic information to the researcher at the beginning of treatment (at the researcher's expense).
- Scanning and emailing questionnaires and the fidelity monitoring tool to the researcher every Friday for the duration of the study. Responses to questionnaires and feedback will remain confidential. Signed consent forms will be kept in a locked safebox.
- Engaging in consultation with the researcher about the groups on a regular basis.

Facilitators in this study will provide an opportunity for you to gain knowledge on the C.A.T. Project manual and animal-assisted therapy. Additionally, you will be helping to expand the field of animal-assisted therapy by contributing to research. At completion of the necessary requirements for the study, you will be compensated \$200.00. By signing this consent, you also agree that your school has approved this project.

If you have any questions regarding this experiment, please contact Courtney Zents (cel3@alfred.edu), or Dr. Jana Atlas (atlasj@alfred.edu). If you have any questions about your

rights as a facilitator, please contact Dr. Steve Byrne, chair of Alfred University's Human Subjects Research Committee (byrne@alfred.edu).

I have read the above statement about the purpose and nature of this study and I freely consent to serve as a facilitator.

Facilitator's Name (please print)

School District

Facilitators signature, Date

School Administrator's Signature, Date

APPENDIX G

Referral Handout

Dear Mental Health Consultants and Teachers,

I am a doctoral student in Alfred University's School Psychology program. I am currently in the process of completing my dissertation and I need your help! Your school district and school psychologist or counselor has agreed to facilitate a study called the **Coping with Anxiety Program**. In order to run the study, I need your help to identify students that you believe may benefit from this program. To help you do this, I've included more information about the study below.

ABOUT THE STUDY:

- Students will participate in a 9-week manualized group treatment for adolescents dealing with anxiety.
- The program uses cognitive-behavioral therapy techniques to learn and practice skills in coping with anxiety.
- Students will have at least one session that includes a therapy dog.
- Your school psychologist/school counselor will facilitate this study and all of its components (e.g., informed consents, questionnaires, group sessions)

WHO TO REFER:

- Students that you believe:
 - Worry a lot
 - Have specific fears
 - Appear socially uncomfortable due to anxiety
 - Lack self-esteem

YOUR SCHOOL'S CONTACT:

- Please contact your school psychologist or counselor to refer students.
- SCHOOL PSYCH/COUNSELOR NAME; E-MAIL

Thank you very much for your help in recruiting students for this program!

Sincerely,

Courtney Zents

APPENDIX H

Coping with Anxiety Program Brochure



Anxiety is not uncommon.

Coping with Anxiety Program
Group treatment for teens ages 13-17

Groups begin in just a few weeks!
Sign up now!

Contact Information:

- Symptoms of **anxiety** include worry, heightened fear toward a situation, difficulty concentrating, feeling tired, muscle tension, difficulty sleeping, and panic attacks (American Psychiatric Association, 2013).
- 25% of adolescents with a mental illness have an anxiety disorder (National Institute of Mental Health, 2015).
- Anxiety can lead to **problems with friendships** (Herbert et al., 2013) **and academics** (Villiancourt et al., 2013).



Courtney Zents, MS, MA

Alfred University
Alfred, NY 14843
cel3@alfred.edu

About the program

The Coping with Anxiety Program aims at reducing anxiety for teens, ages 14-17. Group sessions will be held weekly for 9 weeks and focus on learning skills to overcome anxiety in a supportive environment.

The program is part of a research study being conducted as the final project for my doctoral degree in psychology. As such, there are several qualifying and exclusionary criteria to include participants in the study.



DO YOU WORRY A LOT? STRESS EASILY? HAVE SPECIFIC FEARS?



Dear Students,

*Fighting anxiety is tough to do on your own. You may have a unique opportunity to do something about it now! Your school psychologist or counselor has agreed to help you do this by following a 9-week group program that uses a workbook that has been shown through research to help teens reduce the amount of anxiety and stress they have. Groups will be **limited to 5 students**, so it's important to sign up as soon as possible. For at least one of your sessions, a therapy dog will be there to help you de-stress! Please reach out to your school psychologist/counselor with questions!*

*Sincerely,
Courtney Zents*

WHAT TO EXPECT:

- Students **need to qualify** for participation in the program via a short questionnaire
- Meetings are held with your school psychologist/counselor and 3-4 other students
- Meetings are 1-2 times per week for 30-60 minute sessions for 9 weeks
- Meetings are during the school day
- You will follow a workbook designed to gradually help you overcome anxiety. You'll learn the skills first, and then practice them!
- One or more sessions will include a therapy dog

APPENDIX I
Informed Consent

INSERT DATE

Dear Parent/Guardian,

Thank you for your interest in including your child in the Coping with Anxiety Program at SCHOOL DISTRICT. I have enclosed an informed consent (to be signed by the parent) and assent (to be signed by the child/participant) forms to describe the nature of the study and your rights as a volunteer. Both forms need to be signed in order for your child to participate in the Coping with Anxiety Program. Please sign and return to your child's school.

The return of the consent form does not guarantee your child will be eligible to participate in the study. After a screening measure for elevated levels of anxiety has been given, we will be able to determine their eligibility. I will contact you with the results of the screener within the next week. Meetings will take place after school; details on the meeting time and place will be announced in the next week or two.

If you have any questions, please do not hesitate to call at the phone number listed below. Thank you for your consideration.

Sincerely,

INSERT SCHOOL'S COUNSELOR/PSYCHOLOGIST NAME AND TITLE
INSERT PHONE NUMBER
INSERT SCHOOL NAME

Coping with Anxiety Program

Your child is invited to be in a program that may help to decrease his or her feelings of anxiety. The program is part of research study that investigates the benefits of a therapy dog combined with a researched-based cognitive-behavioral therapy program for anxiety. A therapy dog will be included in at least one of the sessions. Your child was selected as a possible participant because your child is between the ages of 13 and 17, and has expressed symptoms characteristic of anxiety. I ask that you read this form before agreeing to be in this study.

This study is being completed by Courtney Zents, M.S., M.A., as part of the requirement to receive a psychology doctorate in school psychology at Alfred University, Alfred, NY 14802. The person running the therapy group will be FACILITATOR NAME, a trained SCHOOL PSYCHOLOGIST/COUNSELOR, in your child's school or district.

Background Information

The current study will measure whether participation in a group treatment helps to decrease anxiety symptoms in adolescents. The treatment uses cognitive-behavioral therapy, where students will learn strategies to cope with their anxieties, and practice getting over them both in the group and during the week on their own. This has been well researched with children, but not with adolescents. I am hoping to add to the research about how it works with adolescents and include the effect of having a therapy dog as part of treatment.

Procedure

If you and your child agree that your child will participate in this study, I ask that you fill out a demographic form and you child complete a screening questionnaire (10 minutes) to determine your child's level of anxiety. You and your child will then be notified if your child is eligible to participate.

If your child participates, they will meet for 9 or 10 weeks in a group with 2-4 other students from their school. Groups will meet during the school day or after school either for 30 minutes twice per week or 60 minutes once per week, for a total of nine weeks. Throughout the study, your child will be asked to fill out a brief (5-10 minute) questionnaire about how they are feeling and their reaction to the group.

Risks and Benefits of Being in the Study

In all types of counseling, individuals sometimes feel better, but sometimes go through periods in which they feel worse, including more anxious. If that happens, the school psychologist or school counselor is trained to help guide the student through the process gently. It is also possible that your child may feel some mild anxiety after the session. You are welcome to contact the school counselor/school psychologist to discuss ways for you to help your child through this. Still, your child is free to discontinue your participation at any time by informing your group facilitator (school psychologist or counselor).

Benefits of participating in this study include the opportunity for your child to engage in a program for overcoming anxiety. Your child will be able to work with their facilitator and peers as they learn to process anxious thoughts and gain coping strategies within the context of a safe

environment. You are also helping to add knowledge about the effectiveness of this treatment with adolescents.

Confidentiality

The records of this study will be kept private. The school psychologist/counselor and group members will follow the same rules about confidentiality that they would follow if they ran any group counseling in the school. The forms that your child completes will be identified by a subject number, not their name, and will be sent to the researcher. I will be analyzing group averages, not the results for each child. In any report I publish, I will not include any information that would make it possible to identify a participant. Research records will be kept in a locked file; only the researcher will have access to the records. Records will be kept for at least three years after any publications about the study, at which records may be destroyed at the discretion of the researcher.

Voluntary Nature of the Study

Your decision of whether or not to allow your child to participate will not affect current or future relations with your school district or Alfred University. If you decide that your child may participate, he or she is free to withdraw at any time without penalty.

IMPORTANT: If your child participates, you are agreeing that they will not begin another course of counseling during the time of this group. You are also agreeing that they will not change the dosage of medication that they are taking for anxiety or depression. If your child needs any of these interventions (i.e., medication changes or changes in counseling), please tell the group facilitator. Your child will be able to discontinue participation in the group or to continue participating without being included in the research results. At any point that it is needed, the school counselor/school psychologist is able to meet with your child individually in addition to group.

Contacts and Questions

The researcher conducting this study is Courtney Zents, who is a doctoral student in the School Psychology program at Alfred University. If you have questions about your child's participation in this study that you would like to ask before participating, please contact the researcher at cel3@alfred.edu. You may also contact Dr. Jana Atlas, dissertation advisor, at atlasj@alfred.edu. If you have any questions now, or later, related to the integrity of the research (the rights of research subjects or research-related injuries, where applicable), you are encouraged to contact Dr. Steve Byrne, Chair of the Alfred University Human Subjects Research Committee, at (607) 871- 2212 or electronically at HSRC@alfred.edu.

Statement of Consent

I have read the above information. I give consent for my child, _____, to participate in the study.

Signature

Printed name

Date

APPENDIX J

Student Participation Agreement

I, _____, agree to participate in the Coping with Anxiety Program at SCHOOL DISTRICT.

1. I understand that I will be working with other students and a school counselor or psychologist to learn strategies to lower my stress and anxiety.
2. I understand that some tasks might be challenging, but I will try my best. I know that I can tell the school counselor or psychologist whenever I am feeling upset.
3. I agree to protect the privacy of everyone involved by keeping information about other participants and what happens in sessions private.
4. I understand that I can talk about my own personal experiences with whomever I want, but I promise that I will only discuss concerns about other participants with the researchers/co-leaders of the program.
5. I understand that I can choose to not participate in any activity that is presented.
6. If and when the dog is present, I will follow the rules to ensure safety for the dog, others, and myself.
7. If I have any questions or concerns about these expectations or anything else related to the program, I will talk to the program leaders to get answers to my questions.

I agree to follow these guidelines, and to participate in the Coping with Anxiety Program at SCHOOL DISTRICT.

Student Name

Student Signature

Date

APPENDIX L
Debriefing Statement

**THANK YOU FOR YOUR PARTICIPATION IN THE
Coping with Anxiety Program**

Debriefing statement:

Thank you for participating in this study, which was an intervention intended to help you cope with anxiety. You participated in a group treatment that attempted to teach you skills to cope with anxiety. We adapted our program from a manual called the C.A.T. project, which teaches you how to identify signals of anxiety and strategies you can use to cope with anxiety. There were two groups in each school. One of the groups also used a therapy dog each week, while the other group just had the therapy dog in the last group meeting.

Each of you filled out several questionnaires. By examining your responses, I will be able to determine if participating in the groups was helpful to you. I will also be comparing the two groups, to see if having the dog present was more helpful than just using treatment alone.

All of your information will be kept confidential. Even though the group leader knows who you are, he/she will not be telling me who you are. All of the questionnaires have a code number instead of a name on them.

The results from this study will be analyzed and described in a dissertation, the final project for a doctoral degree in School Psychology. Additionally, findings may be presented at local, state, and national conferences and published in a peer-reviewed journal. I will be looking at the averages for the groups, not for individual students. No names will be mentioned in any presentations. Results will also be shared with facilitators to help support the use of therapy dogs in their school. This research will help contribute to the literature on treating anxiety and using animal-assisted therapy.

The researcher conducting this study is Courtney Zents, who is a doctoral student in the School Psychology program at Alfred University. If you have questions about your participation in this, please contact me at cel3@alfred.edu. You may also contact Dr. Jana Atlas, my dissertation advisor, at atlasj@alfred.edu. If you have any questions now, or later, related to the integrity of the research (the rights of research subjects or research-related injuries, where applicable), you are encouraged to contact Dr. Steve Byrne, Chair of the Alfred University Human Subjects Research Committee, at (607) 871- 2212 or electronically at HSRC@alfred.edu.

Thank you and I wish you the best of luck in the future!

Sincerely,

Courtney Zents

COURTNEY E. ZENTS, M.S., M.A., C.A.S.Courtney.Zents@gmail.com

EDUCATION***Doctor of Psychology in School Psychology:*** Alfred University, August 2017***Certificate of Advanced Study in School Psychology:*** Alfred University, May 2017***Masters of Arts in School Psychology:*** Alfred University, May 2015***Masters of Science in Clinical Psychology, Practitioners Track:*** Loyola University of Maryland, May 2013***Bachelors of Arts in Human Development:*** The State University of New York at Oswego, May 2011; Thesis: "Parents' Propensity to Engage in Corporal Punishment: an experimental study"**CLINICAL EXPERIENCE*****School Psychologist:*** Beaufort County School District, Beaufort, SC, August 2017—Present***School Psychology Intern:*** Tennessee Internship Consortium in School Psychology, Knoxville, TN, August 2016—July 2017 (APPIC and APA-approved internship)
Part-time clinic placement at the KLASS Center and part-time school placement at Sweetwater City Schools. Supervisor: Brian Wilhoit, Ph.D.***Graduate Clinician:*** Lea R. Powell Institute's Child and Family Services Center, Alfred, NY August 2015—May 2016; Supervisor: Ellen Faherty, Ph.D.***Academic Consultant:*** Center for Academic Success, Alfred, NY, August 2014—May 2016
Supervisors: Andrea Burch, Psy.D. and Elizabeth Shea, M.A., C.A.S.**RELATED RESEARCH EXPERIENCE*****Publication:***Zents, C., Fisk, A., & Lauback, C. (2016). Paws for intervention: Perceptions about the use of dogs in schools, *Journal of Creativity in Mental Health*, doi:10.1080/15401383.2016.1189371***Presentation:***

Lupton, C., Fisk, A., & Lauback, C. (2015). PAWS for Intervention: A Qualitative Analysis of Positive Psychological and Academic Outcomes for Students. Presented at the National Association of School Psychologists (NASP) 2015 annual conference in Orlando, FL and the New York Association for School Psychologists (NYASP) 2014 annual conference in Albany, NY.

Lecture:

Fisk, A. & Zents, C. (2016). Animal-Assisted Therapy. Guest lecture for senior undergraduate students in Psychology.