SCHOOL-BASED APPLICATION OF A COGNITIVE-BEHAVIORAL INTERVENTION FOR STUDENTS WITH ANXIETY AND CO-OCCURRING ACADEMIC SKILL DEFICITS

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SCHOOL-BASED APPLICATION OF A COGNITIVE-BEHAVIORAL INTERVENTION FOR STUDENTS WITH ANXIETY AND CO-OCCURRING ACADEMIC SKILL DEFICITS

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The purpose of the present study was to examine the effectiveness of a cognitive-behavioral anxiety intervention for students with anxiety and co-occurring academic skill deficits in the school setting. This study employed a multiple baseline experimental design across participants to evaluate the impact of the cognitive behavioral intervention on struggling students with anxiety in the school setting. Participants in the current study \((n = 3)\) included students ranging in age from 8-10 years, and grades 3 through 5. Fear ladder ratings served as the primary dependent measure. Participant anxiety was also evaluated using pre/post *Multidimensional Anxiety Scale for Children, 2\(^{nd}\) edition* (MASC-2; March, 2013) scores. Results indicated a significant decrease in anxiety levels for one participant and non-significant decreases in anxiety levels for the other two participants. The intervention has potential as an appropriate intervention to address the emotional needs of students who experience both anxiety and academic skill deficits.
Implications for practice are discussed regarding the school psychologist’s role in providing intervention for students with anxiety and co-occurring academic skill deficits in the school setting.
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CHAPTER I
INTRODUCTION

Childhood anxiety is one of the most common types of psychopathology in children and adolescents. The most common anxiety symptom among children is persistent and debilitating fear or worry, which must impair functioning and exceed what is considered developmentally normal (Thompson, Robertson, Curtis, & Frick, 2013). The prevalence rate for anxiety ranges from 2-27% depending on the type of anxiety disorder, age of onset, method of measurement, and the time period during which the symptoms are measured (Sulkowski, Joyce, & Storch, 2012). Individuals with anxiety experience many psychological, social, and emotional consequences (Dozois & Westra, 2004). Anxiety symptoms in children often manifest at school, and many students with anxiety also experience academic skill deficits (Thaler, Kazami, & Wood, 2010).

Anxiety can cause significant disruption to a child’s developmental trajectory. These disruptions cause excessive worry that results in impaired concentration on academic tasks and ability to recall previously learned information (Thompson et al., 2013). Children who are genetically predisposed to anxiety and have excessive worry often demonstrate academic difficulties, poorer problem-solving ability, frequent absences from school, all of which may lead to further skill deficits due to missed
instruction and distraction caused by anxiety. In addition, children with anxiety disorders often experience some form of peer rejection (Motoca, Williams, & Silverman, 2012).

Peer interactions are an important component to the healthy social, academic, and emotional development of children. Through these interactions children learn how to cooperate with others, be assertive, display empathy for another, and develop self-control (Motoca, Williams, & Silverman, 2012). Rejection by peers can make an anxious child even more anxious, creating a negative cycle that can be difficult to break.

Early intervention is critical for children who suffer from anxiety. Identifying anxiety and intervening early may help reduce the distressing and often overwhelming symptoms associated with anxiety (Kearny, Pawlukewicz, & Guardino, 2014). Despite the importance of early identification and intervention, less than 20% of children and adolescents receive the mental health services that they need (Essau, Conradt, Sasagwa, & Ollendick, 2012). The cost of treatment, time commitment, availability, and location are often cited as reasons why treatment is not received. In addition, childhood anxiety is frequently overlooked because the symptoms are often unrecognizable or associated with other disorders such as Attention Deficit Hyperactivity Disorder (ADHD) or an Emotional Disturbance (ED; Essau et al., 2012). Thus, the development of cost-effective empirically-based anxiety prevention programs is warranted.

The school setting is the ideal place to help prevent the development of anxiety disorders (Wright & Sulkowski, 2012). Schools are readily equipped with school psychologists who can identify students with anxiety and provide services to those students at no cost to the family. Students who have a learning disability are at a greater risk of developing an anxiety disorder due to the increased psychological distress. Thus,
interventions need to be identified that can be useful for students with academic skill deficits and learning disabilities and co-occurring anxiety (Thaler, Kazami, & Wood, 2010).

There are a number of evidence-based interventions for treating anxiety, many of which are appropriate for use in a school setting; however, few have been evaluated for students with anxiety and who also have academic skill deficits. The purpose of the present study was to examine the effectiveness of a cognitive-behavioral anxiety intervention on students with anxiety and co-occurring academic skill deficits in the school setting.
CHAPTER II
LITERATURE REVIEW

This literature review examines the characteristics of anxiety. Definitions, prevalence, and descriptive features are discussed. A focus is placed on childhood anxiety, specifically children who have anxiety and co-occurring academic skill deficits or a learning disability. Finally, the literature review discusses the benefits of early intervention and specific interventions that have demonstrated efficacy for childhood anxiety.

Anxiety

Anxiety is often referred to as the “common cold” of psychological disorders because symptoms are not life threatening and often go untreated (Dozois & Dobson, 2004). Individuals with anxiety experience many psychological, social, and emotional consequences. Due to these impairments in functioning, researchers note that the quality of life for someone diagnosed with anxiety is comparable, and often worse than, other medical conditions such as diabetes.

Descriptive features. The Diagnostic and Statistical Manual of Mental Disorders fifth edition (DSM–5; American Psychiatric Association, 2013) states that anxiety disorders are characterized by persistent and excessive anxiety, fear, and worry about various aspects of one’s life, including work performance, school performance, family
problems, money issues, and health concerns that the individual finds too difficult to control (2014). The DSM-5 describes fear as the emotional response to a real or perceived threat. Fear is essential to survival because it warns individuals that a situation may be physically or psychologically harmful. Anxiety is defined as the anticipation of a future threat and can occur when a child fails to develop adaptive mechanisms that enable them to master their fears (American Psychiatric Association, 2013; Kerig, Ludlow, & Wenar, 2012). Individuals with anxiety experience any number of the following physical symptoms: muscle tension, gastrointestinal discomfort, irritability, fatigue, edginess, restlessness, and sleep difficulties (American Psychiatric Association, 2013). In addition to physical symptoms, individuals with anxiety also experience negative affectivity resulting in negative emotions and poor self-concept. These individuals will also have an increased sensitivity to negative or threatening events, objects, and information (Chorpita, 2007). In addition, they may experience a limited sense of control over events, anxious thinking that can lead to a bias in attention, interpretation, and self-talk, and poor coping skills (Chorpita, 2007).

**Prevalence.** Anxiety disorders are the most common psychological disorder. It is estimated that up to 10% of children and up to 20% of adolescents meet the criteria for having an anxiety disorder (Essau et al., 2012). Untreated, anxiety is often associated with depression, substance abuse, and anxiety in adulthood (Sulkowski et al., 2012). Previous research concluded that most anxiety disorders occur more commonly in females than males; in females they are more common than any other disorder category (Copeland, Angold, Shanahan, & Costello, 2014). It is hypothesized that there is a heightened sense of uncontrollability of situations and events among females, causing
them to experience more negative life events during childhood and adolescence, which leads to anxiety and other mental disorders (Dozois & Westra, 2004).

**Childhood Anxiety**

Childhood anxiety is one of the most common types of psychopathology in children and adolescents (Sulkowski et al., 2012). The most common anxiety symptoms among children are constant, burdensome, fear or worry that impairs functioning and exceeds what is considered developmentally normal. Young children may be fearful of natural disasters or concerned with injury/death, while adolescents are often fearful of how they are perceived by others, academics, extracurricular activities, and health concerns (Thompson et al., 2013). In addition, children with anxiety are often shy, cooperative, and compliant in school, making detection of the disorder difficult (Essau et al., 2012). Prevalence rates for anxiety disorders range from 2 to 27% depending on the following factors: specific disorder, child age, method of measurement, and the time period when the symptoms are measured (Sulkowski et al., 2012). Youth with internalizing disorders such as anxiety experience impairments in family relationships, friendships, and academic functioning. Without early identification and direct intervention these anxiety symptoms can persist well into adult life (Warner & Fox, 2012).

**Risk factors for anxiety.** There are a number of factors that increase an individual’s risk for developing anxiety symptoms and diagnoses. Research suggests that both temperamental and environmental influences effect the unfolding of anxiety symptoms among children (Mian, Wainwright, Briggs-Gowan, & Carter, 2011). Interpersonal risk factors, ecological risk factors, and peer perceptions are among the
most prominent risk factors influencing the presence of anxiety symptoms among children (Mian et al., 2011; Morris, 2004; Motoca et al., 2012).

**Interpersonal risk factors.** Previous research has identified several interpersonal risk factors associated with the early development of internalizing disorders, including: behavioral inhibition (tendency to display fear, withdrawal, wariness in unfamiliar situations), negative emotionality, emotional dysregulation, and limited attention control (Mian et al., 2011). Behavioral inhibition refers to the tendency to display characteristics such as fear, withdrawal, or wariness in unfamiliar situations and is as an early indicator of anxiety in toddlers. Negative emotionality refers to a child who shows the following characteristics: irritability, negative mood, and difficulty soothing. Aside from anxiety, negative emotionality is linked to many other forms of psychopathology (Mian et al., 2011). Emotional dysregulation is a combination of heightened emotional response and difficulty regulating emotional reactions. It occurs when a child exhibits more intense and frequent emotional responses to stimuli they perceive as threatening but are considered very mild to others. In order to display appropriate self-regulation techniques a child must have the ability to concentrate on a particular task, thoughtfully process an experience, solve a problem, and shift attention from one stimulus to another (Thompson et al., 2013). Children with anxiety struggle to self-regulate. While trying to concentrate on a single task, children are often worrying about other assignments, thus they are unable to process their experiences thoughtfully and solve problems (Thompson et al., 2013). Children with anxiety often experience one or more of these intrapersonal risk factors.

**Ecological risk factors.** A child’s earliest interactions occur between themselves and their primary caregiver. These interactions, if negative, can lead to an unhealthy and
insecure attachment. Previous research has shown that an anxious-resistant attachment style is associated with a higher risk of developing an anxiety disorder during childhood. An anxious-resistant attachment style occurs when a child is anxious about exploring their surroundings, even when their mother/primary caregiver is present (Morris, 2004). Children who have anxious parents are seven times more likely to receive an anxiety diagnosis than children with non-anxious parents (Mian et al., 2011). Research notes that parents with anxiety tend to be more controlling and less warm towards their children. They often appear less engaged and available, increasing the risk for the development of an anxiety disorder in one or more of their children. Children often rely on their parents early in life to create opportunities for social interaction. Parents who have developed anxiety around social situations are often less likely to facilitate interactions between their child and another child (Morris, 2004).

In addition to having anxious parents there are several other risk factors that contribute to the development of an anxiety disorder. Children who are exposed to family conflict or violence have an increased risk of developing an internalizing disorder because it predisposes them to the development of a cognitive style by which the environment is interpreted as unpredictable and dangerous (Mian et al., 2011). Similarly, factors including poverty, having a teenage mother, having a single parent, limited household education, and inclusion in an ethnic minority group all contribute to the risk of developing one or more anxiety disorders (Mian et al., 2011).

**Peer perceptions.** Peer interactions are an important component to the healthy social, academic, and emotional development of children. Through these interactions children learn important life skills such as cooperation, assertion, empathy, and self-
control (Motoca et al., 2012). Social interactions also provide students with a context for learning skills and a model to help build future relationships (Motoca et al., 2012). Children with an anxiety disorder often experience some form of peer rejection. Although anxiety is often the cause of peer rejection, children who do not suffer from anxiety can develop symptoms of anxiety because of peer rejection (Verduin & Kendall, 2003).

**Early Identification and Prevention**

Anxiety can cause significant disruption to a child’s developmental course, causing disruptions in their social skills, emotional well-being, and excessive worrying that can impair a child’s ability to concentrate on academic tasks and recall previously learned information (Thompson et al., 2013). In addition, children with anxiety experience somatic symptoms such as stomach aches, headaches, and nausea. Some students may experience subclinical (not meeting criteria for a diagnosis) symptoms of anxiety which may be uncomfortable and produce some avoidant behaviors but allow for a relatively normal function in everyday life. Anxiety in school-aged children predicts below average academic achievement and later educational underachievement (Anticich, Barrett, Gillies, & Silverman, 2012). Early intervention is critical not only for children diagnosed with anxiety but also those that demonstrate pre-diagnosis symptoms. By improving knowledge and understanding of anxiety and successful evidence-based interventions it may also improve accurate identification of students at risk of developing anxiety and help prevent undesired long-term outcomes such as depression, substance abuse, and anxiety in adulthood (Esbjørn, Bender, Reinholdt-Dunne, Munck, & Ollendick, 2012).
It is estimated that between 10% and 20% of children and adolescents meet the criteria for an anxiety disorder (Essau et al., 2012). Thus, it is important to identify strategies to make effective interventions accessible to all children. The school setting is an ideal place to help prevent the development of anxiety disorders (Essau et al., 2012). Currently, many schools offer Multi-Tiered Systems of Support (MTSS); typically defined as *universal, selected, or indicated* level. Universal services are directed at a large number of people, regardless of their risk status, over a short period of time. Selected services aim to help those students who are identified as at risk of mental health problems. Indicated services target students who are identified as having mild to moderate symptoms of a mental health disorder (Essau et al., 2012).

**Anxiety in the Schools**

Despite the importance of early identification and intervention, less than 20% of children and adolescents receive the mental health services that they need (Essau et al., 2012). Several reasons why treatment is not received are: the cost of treatment, time commitment, availability, location, and the negative stigma associated with mental health disorders. In addition, childhood anxiety is frequently overlooked because children with anxiety can be shy, cooperative, and compliant when in school, not bringing any attention to themselves (Essau et al., 2012). Consequently, the need for an established prevention program in schools is critical. Partnering with schools to help educate teachers and school staff on anxiety symptoms can facilitate early detection (Herzig-Anderson, Colognori, Fox, Stewart, & Warner, 2012). All children are entitled to a free and appropriate education, making the schools an ideal setting to deliver mental health services (Sulkowski et al., 2012).
Academic Skill Deficits

Children who are pre-disposed to anxiety and have excessive worry often demonstrate poorer academic achievement, poorer problem-solving ability, higher rates of school refusal, and frequent absences from school. These consequences may lead to further skill deficits due to missed instruction and distraction caused by anxiety (Chiu et al., 2013). Academic skill deficits may result in poor self-efficacy, which leads to academic disengagement and further skill deficits, becoming increasingly difficult to reverse the longer they go unidentified and untreated.

More than 2,800,000 children are identified with a learning disability (LD; Bryan, Burstein, & Ergul, 2004). Children and adolescents who qualify for special education under one of the 13 disability categories, specifically a learning disability, often experience increased levels of psychological distress and are at a greater risk of developing an anxiety disorder than students who do not qualify for a learning disability (Marwood & Hewitt, 2012). Students with LD make up 47% of the population in special education (Thaler, Kazami, & Wood, 2010). Students with LD often exhibit discrepancies between intellectual functioning and academic achievement. Students who qualify for LD often have a limited vocabulary, an under average processing speed, memory and communication deficits, difficulties reading social cues, and avoid new situations. In addition, students with LD perceive themselves more negatively on measures of academic self-concept and perform substantially lower academically based on their intelligence and age (Bryan et al., 2004; Gallegos, Langley, & Villegas, 2012). Given that a diagnosis of LD does not apply to problems that are primarily caused by an identified emotional disturbance (anxiety can be so severe that a person may qualify as
having an emotional disturbance), it is hard to determine if learning difficulties are the specific cause of anxiety, a learning disability, or both (Thaler et al., 2010).

**Effective Interventions for Childhood Anxiety**

**Cognitive behavioral therapy (CBT).** Among the various treatment methods for anxiety, cognitive-behavioral therapy (CBT) is ranked as a “well-established” and “probably efficacious” form of treatment by the American Psychological Associations Task Force on Promotion and Dissemination of Psychological Procedures (Sulkowski et al., 2012). The term cognitive-behavioral represents a combination of cognitive, behavioral, affective, and social strategies for change (D’Eramo & Francis, 2004). There are several components that comprise a CBT intervention for childhood anxiety, including: psychoeducation, exposure therapy, cognitive restructuring, relaxation training, diaphragmatic breathing, progressive muscle relaxation, contingent reinforcement, and modeling (Sulkowski et al., 2012).

Given the direct access to students with mental health disorders, schools are in an ideal position to provide CBT interventions to children with anxiety. One study conducted by Chiu et al. (2013) used the Building Confidence intervention and concluded that students who participated in a modularized CBT intervention experienced greater caregiver reported symptom reduction and greater child reported symptom reduction than children in the waitlist condition. Furthermore, 95% of children who participated in the CBT intervention had a positive treatment response by the end of the intervention and were free of anxiety symptoms (Chiu et al., 2013). The Chiu study’s use of the Building Confidence intervention is just one of several evidence based interventions for anxiety that have been examined in the school setting.
**Coping cat.** The Coping Cat (Kendall & Hedtke, 2006) was among the first manualized CBT interventions to be developed for the treatment of anxiety. The program has proven effective in multiple randomized controlled trials across cultures and is effective in maintaining treatment gains over time (Keehn, Lincoln, Brown, & Chavira, 2013). The primary goal of Coping Cat is to help children recognize signs of anxiousness and have that serve as a cue to begin using anxiety management techniques developed during the intervention. There are sixteen sessions divided into two parts (Keehn et al., 2013). The first eight sessions teach students anxiety reduction skills such through affective education, awareness of somatic sensations, cognitive restructuring, developing a coping plan, and evaluating performance. The second eight sessions focus on exposure tasks in a number of anxiety provoking situations. Coping Cat also offers two parent sessions that provide information on the child’s treatment goals and encourages parent input, impressions, and cooperation (Keehn et al., 2013).

**FRIENDS for life program.** The FRIENDS for life program, developed by Paula Barrett in 2005, is a universal CBT intervention for preventing anxiety in the schools. The program has two versions: children 7-12 years and youth 12+ years (Liddle & Macmillan, 2010). The program utilizes techniques that teach all students different strategies for helping to manage their anxiety symptoms (Maggin & Johnson, 2014). The different strategies used in the program coincide with the FRIENDS acronym: F-- feeling worried?, R--relax and feel good, I -- inner thoughts, E -- explore plans, N -- nice work, D -- don’t forget to practice, and S -- stay calm, you know how to cope. The strategies are delivered through structured activities over a ten week period in 60 minute sessions. In order to assess retention of the material, two sessions are offered after the first and third
months upon completion. In addition, parents are offered a two day comprehensive training course to increase their awareness anxiety and anxiety related symptoms (Maggin & Johnson, 2014). The FRIENDS for Life program has been seen, over the last 10 years, as a “uniquely” successful intervention (Liddle & Macmillan, 2010). Studies conducted by Lowry-Webster, Barrett, and Dadds (2001) and Stallard, Simpson, Anderson, Hibbert, and Osborn (2007) both demonstrated decreased levels of anxiety symptoms among study participants (Liddle & Macmillan, 2010).

**Multi-Tiered Service Delivery for Anxiety**

Following the transformation of IDEA into IDEIA, most schools are implementing a response to intervention (RTI) service delivery paradigm for the provision of services and supports for students. The RTI paradigm is a “Multi-Tiered school-based service delivery framework” that addresses the various academic, behavioral, and medical needs of students (Sulkowski et al., 2012). Although Froiland (2011) states that RTI is better established in the academic realm; however, he also states that it is well suited for addressing behavior and mental health concerns. Specific RTI components include universal screening, evidence-based early intervention service delivery, collaborative problem solving, progress monitoring, and progressive applications of intervention intensity. Intervention intensity in the RTI model is divided into three tiers: Tier 1, Tier 2, and Tier 3 (Sulkowski et al., 2012). These tiers correspond to the universal, selected, and indicated tiers discussed above.

**Tier 1.** The primary function of Tier 1 is to provide school-wide prevention services (i.e., bully prevention and safe school initiatives) and a system-wide screening for mental health concerns and data analysis for all students to address the needs of a
school system. Tier 1 strategies to address anxiety typically include school-wide behavioral screeners. Through school-wide screenings such as the Behavioral Assessment Scale for Children, Second Edition (BASC-2), Behavioral and Emotional Screening System (BESS) and the Social Skills Improvement System (SSIS), students with elevated anxiety levels can be identified (Sulkowski et al., 2012). If, based on data obtained in Tier 1, school personnel (i.e., school psychologist, classroom teacher, etc.) report that a student has a level of anxiety that requires more supports than those provided in Tier 1, that student may be eligible to receive Tier 2 services.

**Tier 2.** Tier 2 employs a multi-method assessment for students identified as having significant anxiety based on their Tier 1 universal screener. These types of assessments might include structured observations, interviews with parents, teachers, and students, work samples, and behavior rating scales (Sulkowski et al., 2012). Common behavior rating scales used are the Behavior Rating Scale for Children, Second Edition (BASC-2), the Child Behavior Checklist (CBCL), and the Conner 3rd Edition (Reynolds & Kamphaus, 2004; Achenbach, 1992; Conners, 2008). After identification of anxiety through a multi-method assessment, students with heightened levels of anxiety may receive services at Tier 2. Previous research has shown group therapy and computer-based CBT programs to be effective methods of treatment for students with anxiety. During group therapy members can identify with one another, provide necessary support, and help identify maladaptive thoughts and behaviors of other members. Computer programs can provide individual therapy sessions followed by therapist led exposure therapy (Sulkowski et al., 2012). If the intensity of a Tier 2 intervention does not adequately meet their needs, students may qualify for Tier 3 intervention.
**Tier 3.** Tier 3 interventions are for students who do not respond to universal (Tier 1) and selective (Tier 2) interventions. Approximately 1-5% of students will require additional support at the Tier 3 level (Sulkowski et al., 2012). Tier 3 interventions often implement a formative assessment of the student’s skills followed by an intense, often one-on-one intervention (Froiland, 2011). This close monitoring is critical for determining the success of this more intensive, high quality intervention. The Coping Cat and the FRIENDS for life program are both interventions that could be used in a Tier 3 setting. Students work one-on-one with a clinician to complete the interventions. Tier 3 is different from Tier 2 because these are not done in groups. Throughout a Tier 3 intervention data are obtained to determine a students’ performance and functioning and whether they are failing to make progress despite the more intensive forms of interventions (Sulkowski et al., 2012). In these circumstances students may then be referred to be assessed for special education.

This multi-tiered system is important for providing services to anxious youth in schools because it is designed to identify students early so that they may receive services. The earlier services are implemented the faster a child may receive techniques for mastering their anxiety reducing the likelihood of a diagnosis or qualification for special education.

**The Present Study**

Gallegos, Langley, and Villegas (2012) identified anxiety as a significant mental health condition that is associated with depression, deviant conduct, and substance abuse. Gallegos et al. also concluded that children with a learning disability (LD) and/or academic skill deficits are often predisposed to social and emotional difficulties resulting
in a greater risk of developing anxiety than their typically developing peers. There is a need to examine anxiety interventions at the Tier 2 and 3 levels that provide positive outcomes for students with academic skill deficits such as those with LD. CBT has a strong evidence base, and studies have been conducted with children in a school setting (Sulkowski et al., 2012). However, little research has been conducted on the effectiveness of these interventions for students with anxiety and co-occurring academic skill deficits and/or learning disabilities. The purpose of the present study was to determine the impact of a modularized cognitive-behavioral intervention on students with anxiety and co-occurring academic skill deficits in the school setting.
CHAPTER III
METHOD

Research Question and Prediction

The following research question was posed for the current study: *What is the impact of a modularized cognitive-behavioral intervention on students with anxiety and co-occurring academic skill deficits in the school setting?*

It was predicted that the implementation of a cognitive behavioral therapy intervention, for eight weeks, would be effective for students with an academic skill deficit and anxiety. This prediction was based on research demonstrating the effectiveness of a modularized CBT intervention for students with anxiety in the school settings (Herzig-Anderson, Colognori, Fox, Stewart & Warner, 2012).

Research Design

A multiple baseline experimental design across participants was used to evaluate the impact of the cognitive behavioral intervention on struggling students with anxiety in the school setting. This methodology was chosen for several reasons, including: (a) the low prevalence of anxiety in academically struggling students, (b) difficulties in using a control group in a school setting, (c) a waitlist was not required, and (d) the participants’ baseline served as control for comparison purposes. The use of a single-case design allowed for observance of anxiety reductions across participants and participants served
as their own controls, allowing for evaluation of intervention effects with a small sample. Single-case designs can provide a strong basis for establishing causal inference, and these designs are widely used in applied and clinical disciplines in psychology and education, such as school psychology and special education (Kratochwill et. al, 2010). The dependent variable in the present study was the (reduction in) anxiety level measured by weekly fear ladder ratings and administration of the Multidimensional Anxiety Scale for Children, 2nd edition (MASC-2; March, 2013) pre and post; the independent variable was the modularized CBT intervention.

**Participants and Setting**

**Participants.** Participants in the current study included \((n = 3)\) students selected by convenience sampling from a small Midwestern suburb in Ohio. Participants’ ages ranged between 8-10 years, and grades 3 through 5. The present study included two third grade girls and one fifth grade boy. This method of sampling was chosen because the students were readily available to the researcher who was completing a school psychology internship in the school district. Start points for each participant were staggered dependent upon when consent was received and intervention began after 3 baseline data points were collected for each participant. This technique strengthened evidence of intervention effectiveness. Criterion for participation in this study included: (a) enrollment in a public school, (b) a demonstrated academic skill deficit identified by the student’s teacher, (c) a score of 60 or higher on any subscale of the *Multidimensional Anxiety Scale for Children 2nd edition (MASC-2)* reported by each student, and (d) submission of a signed parental consent and child assent to participate in the study.
Participants were excluded from the present study if: (a) they were currently participating in a CBT intervention for anxiety outside of school, (b) the school, teacher, and/or parent was unwilling to participate in the intervention, (c) results of their MASC-2 do not indicate significant anxiety, and/or (d) the child had recently started taking medication to alleviate their anxiety symptoms. The setting and three participants are described in detail in the following paragraphs. Pseudonyms were given to each participant in order to protect their identity.

**Setting.** The intervention was completed at a small Midwestern school district located in Ohio. The school district is an award winning district that maintains high standards for personal and academic success. Each intervention session was completed in the office of the school psychologist where distractions were minimal and lighting and ventilation were adequate.

**Janet.** Janet is an 8 year old third grade student. She has been enrolled in the school since kindergarten. In terms of academic skill deficits, Janet’s teacher indicated that she was a pleasant student to have in class but was often unorganized and often lost materials such as homework assignments, worksheets for class, and class notebooks. In addition the teacher reported that Janet rarely participated in class and often shut down emotionally when being corrected in front of her classmates. Janet’s mother reported that Janet is uncomfortable leaving her side. She reported that Janet appears very anxious and upset when her mother leaves for business trips or is late coming home from work and that Janet has never had a sleepover with a friend due to these anxieties. Her mother also reported that Janet developed these anxiety symptoms within the last couple of years and
that Janet did not have a formal diagnosis of anxiety and, therefore, has received no formal treatment. In addition, no family history of anxiety was reported.

**Kaitlin.** Kaitlin is an 8 year old third grade student. She has been enrolled in the school since kindergarten. In terms of academic skills deficits, Kaitlin’s teacher indicated that she was a fun and engaging student who struggled to turn assignments in on time. Her mother reported that it was often difficult to persuade Kaitlin to go to school. Kaitlin often became upset and did not want to get out of the car. She also reported that Kaitlin is always concerned about the weather. She attempts to check the weather forecast several times per day and, as a result, dwells over any rain or other severe weather forecasted for that day or any days following. Her mother reported that these anxiety symptoms began several weeks before the start of the school year. In addition, she reported that Kaitlin did not have a formal diagnosis of anxiety and, therefore, has received no formal treatment. She also reported that no family history of anxiety was known.

**Nick.** Nick is a 10 year old fifth grade student. He has been enrolled in the school since kindergarten. In terms of academic skill deficits, Nick’s teacher indicated that he was a model student with good grades but was lacking in his organizational skills. Nick failed to write down his homework or locate assignments and worksheets in a timely manner. His mother reported that Nick has always been anxious about his grades. He often dwells over assignment due dates and test and quiz grades, even though he has consistently done well in school. In addition, she reported that Nick did not have a formal diagnosis of anxiety and, therefore, has received no formal treatment. She also reported that no family history of anxiety was known.
Materials

Measures. Given the internalizing nature of anxiety, it is difficult for external observers to detect and thus challenging to measure accurately. Thus, fear ladder ratings were used as a behavioral representation of the child’s anxiety-related avoidant behaviors to establish baseline data and as a repeated measure during the intervention phase. A fear ladder is a list or “ladder” of anxiety provoking situations reported by the client (Chorpita & Weisz, 2008). The fear ladder rating forms used in the current study were adopted from MATCH-ADTC (ADTC stands for anxiety, depression, trauma, conduct) module titled Fear Ladder. Prior to baseline data collection, each participant was asked to create a fear ladder with support and guidance from the researcher/clinician. This was conducted by asking the child to identify situations (target of 10 situations) that resulted in a heightened level of anxiety (e.g., test taking, playing outside at recess, or being called upon during class). Participants were then asked to rate these situations in the order of least and most anxiety provoking (1= least anxiety provoking and 10= most anxiety provoking). These items were then labeled on each participating students’ fear ladder and participants were asked to rate all situations on their ladder each week on a scale from 1 to 10. A fear thermometer was used in order to assist participants in rating their situations. Weekly fear ladder ratings were averaged, yielding a value that served as the primary dependent measure in the study.

Multidimensional Anxiety Scale for Children 2nd edition. The Multidimensional Anxiety Scale for Children 2nd Edition (MASC-2; March, 2013) is a comprehensive, multi-rater assessment of anxiety dimensions in children and adolescents aged 8-19 years. The MASC-2 indexes the range and severity of anxiety symptoms and can be a useful
resource to the process of diagnosing anxiety disorders. The MASC-2 can aid in the early identification of anxiety-prone youths, as well as help to monitor treatment effects.

The MASC-2 consists of two separate forms - the MASC-2 Self Report (SR) and the MASC-2 Parent Report (P). For the purposes of this study, only the MASC-2 Self-Report was used in order to screen anxiety and determine eligibility for the study. The MASC-2 was administered again at the conclusion of the intervention to measure treatment gains. The MASC-2 can be administered and scored in two ways; paper and pencil method or the computerized method. The paper and pencil form was used for administration and scoring in the present study.

The Multidimensional Anxiety Scale for Children 2nd ed.-Self Report (MASC 2-SR; March, 2013) is formatted for students the age of 8 to 19 years and consists of 50 Likert scale questions from 0 to 3: 0=Never, 1=Rarely, 2=Sometimes, and 3=Often. This scale is designed to assess a broad range of emotional, physical, cognitive, and behavioral symptoms in order to cover the representation of childhood anxiety symptoms (March, 2013). The MASC 2-SR contains four main subscales: physical symptoms harm avoidance, social anxiety, and separation/panic. There is also a total anxiety scale score that measures symptoms across all four main subscales.

Raw scores on the MASC-2 are derived by summing the values associated with each item response on a respondent’s completed form. Higher scores indicate more marked or definite symptoms, while lower scores indicate symptom prevalence. Because a youth’s raw score on a scale is not readily comparable to those obtained by other youths or comparable to that individuals score on other scales, it is recommended that raw scores be converted to standardized scores. Standardized T-scores have a mean of 50 and a
standard deviation of 10. High T-scores on the MASC-2 generally indicate high levels of anxiety-related symptoms. A T-score of 70 or more is considered Very Elevated and is attributed to many more concerns than are typically reported. Scores 65-69 are considered Elevated, 60-64 are considered Slightly Elevated, 55-59 are High Average, 40-54 are Average, and scores less than 40 are Low.

The MASC 2-SR has strong psychometric properties. The coefficient alpha reliability of the MASC 2-SR Total Score is .92 in the overall MASC 2-SR normative sample and the test-retest reliability ranged from .80 to .94, all p<.001. The internal consistency of the MASC 2-SR was .92 from the normative sample and a .79 median alpha value for the scales and subscales. The normative sample for the MASC 2-SR included 1800 self-report ratings from youths aged 8 to 19 years-old. This information demonstrates that the users of the MASC 2-SR can be confident the scores generated using this measure will be consistent and reliable (March, 2013). The MASC 2-SR is effective in discriminating between relevant groups, correlating meaningfully with scores from other measures of anxiety, and generalizing across rater type and racial/ethnic groups.

Participating students whose parents provided consent completed the MASC 2-SR in order to screen their current level of anxiety before (to establish eligibility) and at the conclusion of (to demonstrate improvements) the intervention. This assessment was administered individually and took approximately 15-20 minutes for each student, including reading the assent form, giving instructions, and completing the measure.

**Intervention materials.** Materials for this intervention were acquired through a web-based service known as Practice Wise. *MATCH-ADTC*, a service provided through
the website and utilized in this study, employs a modularized CBT approach (Chorpita & Weisz, 2008). There are several different behaviors that this program targets, but for the purpose of the present study, anxiety-related modules were used. A flow chart was used to determine which modules needed to be completed based on the child’s presenting difficulties. All participants completed Getting Acquainted, Fear Ladder, Learning About Anxiety – Child, Practicing, Maintenance, and Wrap Up modules. Based on each student’s MASC-2 results, additional modules were completed, if necessary (i.e., conduct related, trauma related, mood related). Module materials included activities such as worksheets and games.

**Procedures**

The researcher received approval from the Institutional Review Board (IRB) at the University of Dayton to complete this study prior to data collection. Prior to recruitment, signed consent was obtained from the participating school district and from the principal of the participating school. The district’s school psychologist and school counselor were contacted to assist in recruiting student participants. Once several students with academic skill deficits and co-occurring anxiety were identified, parent consent and student assent was obtained. Next, students were asked to complete the MASC-2 SR. Students whose self-report yielded a t-score of 60 or higher on any of the subscales was eligible to participate in the study. Parents were contacted regarding students’ eligibility to participate and to discuss general intervention plans. All students were assigned a pseudonym to protect their identity and to maintain confidentiality in all written documents, including this thesis. Data was kept in a secure filing cabinet during the research project and will be secured for two years following the completion of the
project at which time all files, papers, and electronic copies will be shredded and/or deleted.

Baseline data were collected for all participating students for three consecutive weeks. At the beginning of the baseline period students completed two preliminary intervention modules from Practice Wise, including: Getting Acquainted and Fear Ladder. These modules were completed in order to create a fear hierarchy with the student, which served as the primary repeated measure in the study across baseline and intervention periods.

Each week students completed modules related to their anxiety in a one-on-one setting with the researcher/clinician; modules were selected based on participants’ results of the MASC-2 and their individual needs as the intervention progressed. All participants completed the following modules regardless of their level of anxiety: Getting Acquainted, Fear Ladder, Learning About Anxiety – Child, Practicing, Maintenance, and Wrap Up. If, based on preliminary results of the first four modules, students were not ready to begin practicing (i.e., exposure) then interference modules were completed based on the type of interference (i.e., conduct related, trauma related, mood related). After successful completion of any interference modules, participants then completed the Practicing, Maintenance, and Wrap Up modules. At the beginning of each weekly intervention session, students were asked to complete a fear ladder (repeated measure). Students’ intervention start points varied; participants began the study in the order in which they were recruited and consent was obtained. Given the constraints of a school setting, it was not feasible to wait for the previous participant’s response to the intervention; each student began intervention following a fixed three weeks of baseline data collection, with
one week separating each participant. Post intervention data were collected following the termination of the cognitive-behavioral intervention using the MASC-2 SR.
CHAPTER IV
RESULTS

Data Analysis

To answer the research question: *What is the impact of a cognitive-behavioral anxiety intervention on struggling students with anxiety in the school setting*, the following data analyses were conducted by the researcher. The primary analysis method used to evaluate the impact of the intervention was visual inspection of graphed (fear ladder rating) data for each participant. Visual analyses of each participant’s fear ladder outcome data included examination of: level, trend, variability, immediacy of the effect, overlap, and consistency of data patterns across similar phases (Kratochwill et al., 2010). An immediacy of the effect refers to the change in level between the last three data points in the first phase and the first three data points in the second phase. Overlap refers to the proportion of overlapping data points between phases, and consistency of data patterns looks at the consistency of the data between phases with similar conditions (Kratochwill et al., 2010).

An effect size was calculated for each participant based on weekly averaged fear ladder ratings and using Cohen’s d (d-index). The effect size was used to determine the magnitude of change based on the effects of the intervention. According to Hunley and
McNamara (2010) effect sizes of .2, .5, and .8 correspond with small, moderate, and large effect sizes.

Given the small number of participants in the study, there are statistical limitations for measuring the significance of the change in scores on the MASC-2 (pre/post measure). Originally proposed by Nunally and Kotsche in 1983, the reliability change index (RCI) is a method for determining whether or not the impact of an intervention is significant. The RCI is computed by dividing the difference between the pre-treatment and post-treatment scores by the standard error of measurement (SEM), and can be interpreted based on a z-score distribution. If the z-score is greater than +1.96 (or less than -1.96 for change in the negative direction) the difference is considered to be reliable, since a change of this magnitude would not be expected given the reliability of the measure. If the RCI score is less than +1.96 (or greater than -1.96 for change in the negative direction), the change is not considered to be reliable, as it could have occurred simply due to the unreliability of the measure. The RCI was calculated for students’ scores on the MASC-2 pre and post-test.

Each study participant completed a total of 9 weeks (including baseline and intervention sessions) with the researcher. Data from each session is explained through the use of fear ladder ratings and pre/post MASC-2 scores. In addition RCI values were calculated for each participant based on their pre/post MASC-2 scores. An overall data analysis for each study participant is explained below.

Janet. Janet met with the researcher/clinician for intervention consistently each week, with the exception of the week of Thanksgiving, for a total of 10 weeks. Her sessions included three baseline data collections and a total of seven intervention
sessions. Each intervention session was conducted as planned, with added activities such as coloring and card games when time permitted. Due to the immediate decline in fear ladder ratings after intervention began interference modules were not utilized (see Table 1). Janet participated in one exposure/practice session where she was presented with several anxiety provoking situations (based off her fear ladder scenarios). For each scenario Janet explained how she would overcome each situation by utilizing techniques learned in the intervention sessions. In addition, informal interviews with Janet’s teacher indicated an overall improvement in Janet’s ability to keep track of and turn in assignments. She believed this was due to Janet’s outside anxieties being managed.
Table 1. *Modules Implemented for Each Participant*

<table>
<thead>
<tr>
<th>Session</th>
<th>Janet</th>
<th>Kaitlin</th>
<th>Nick</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Getting to Know You</td>
<td>Getting to Know You</td>
<td>Getting to Know You</td>
</tr>
<tr>
<td>2</td>
<td>Constructing a Fear Hierarchy, STOP Worksheet</td>
<td>Constructing a Fear Hierarchy, STOP Worksheet</td>
<td>Constructing a Fear Hierarchy, STOP Worksheet</td>
</tr>
<tr>
<td>3</td>
<td>STOP Worksheet</td>
<td>STOP Worksheet</td>
<td>STOP Worksheet</td>
</tr>
<tr>
<td>4</td>
<td>STOP Worksheet</td>
<td>STOP Worksheet</td>
<td>STOP Worksheet</td>
</tr>
<tr>
<td>5</td>
<td>Learning About Anxiety</td>
<td>Learning About Anxiety</td>
<td>Learning About Anxiety</td>
</tr>
<tr>
<td>6</td>
<td>Learning About Anxiety</td>
<td>Learning About Anxiety</td>
<td>Learning About Anxiety</td>
</tr>
<tr>
<td>7</td>
<td>Practice</td>
<td>Practice</td>
<td>Practice</td>
</tr>
<tr>
<td>8</td>
<td>Maintenance</td>
<td>Maintenance</td>
<td>Maintenance</td>
</tr>
<tr>
<td>9</td>
<td>Wrap-Up</td>
<td>Wrap-Up</td>
<td>Wrap-Up</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>9 Modules</strong></td>
<td><strong>9 Modules</strong></td>
<td><strong>9 Modules</strong></td>
</tr>
</tbody>
</table>
**Weekly fear ladder ratings.** Janet completed an 8-item rating of self-identified fears or anxieties during each baseline and intervention session. The rating utilized a 10-point feelings thermometer, where a 0 indicated that the item triggered no fear and a 10 indicated the item was anxiety provoking and caused a lot of fear. Janet’s eight fears either involved feeling embarrassed at school or involved her mother getting hurt, leaving for work, or leaving for a business trip. In discussion with Janet, it was revealed that there was not one specific anxiety provoking situation that caused these fears to emerge. Janet reported that she has had these sorts of feelings for a long time. Figure 1 depicts how Janet rated her fears during each baseline and intervention session. At the beginning of the intervention Janet presented with an average score of 10 on each fear ladder rating and at the end of the intervention she presented with an average score of 0 on each rating.
Figure 1. *Student Outcomes Across Participants*

**Kaitlyn**

**Janet**

**Nick**

*Note.* Weeks 11 and 12 reflect school breaks for holidays, thus no intervention sessions occurred.
**Visual analysis.** Janet’s fear ladder ratings present with an overall stability over time through the baseline and intervention phases. Data that clearly shows future levels of the target behavior from a prior period are considered stable (Hunley & McNamara, 2010). In addition, due to the downward trend in the intervention data, representing a decrease in anxiety levels, an overall level (determined by the mean and median score on the dependent variable) for the data was not calculated. Hunley and McNamara (2010) note that because a middle score is used to summarize data, the level is not useful when there is a trend in the data. The observed effects of the anxiety intervention, as displayed in Figure 1 were immediate for Janet, strengthening the relationship between the treatment and the outcomes. Janet’s data present with an overlap of scores during weeks 5, 6, and 7 of intervention. Janet’s baseline data were consistent and stable across time and her intervention data demonstrated a consistent downward trend. An effect size of -1.66 ($d$-index) was calculated based on Janet’s average fear ladder ratings (see Table 2). This effect size reflects a large effect.
Table 2. *Mean Fear Ladder Ratings and Corresponding Effect Sizes*

<table>
<thead>
<tr>
<th>Participant</th>
<th>Baseline Mean</th>
<th>Baseline SD</th>
<th>Treatment Mean</th>
<th>Treatment SD</th>
<th>Effect Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Janet</td>
<td>9.62</td>
<td>0.38</td>
<td>3.06</td>
<td>2.76</td>
<td>-1.66</td>
</tr>
<tr>
<td>Kaitlin</td>
<td>5.13</td>
<td>0.50</td>
<td>4.71</td>
<td>0.46</td>
<td>-0.08</td>
</tr>
<tr>
<td>Nick</td>
<td>4.29</td>
<td>0.40</td>
<td>2.73</td>
<td>0.89</td>
<td>-1.48</td>
</tr>
</tbody>
</table>

*Note. Fear ladder ratings were based on a scale ranging from 1-10; average ratings were calculated weekly.*

**Pre/post outcome data.** Janet’s MASC-2 pre-test Total Score was 70, which was at the 78th percentile and within the Clinically Significant range. On the post-test, Janet’s Total Score was 47, well within the average range and at the 33rd percentile when compared to typical same-age peers; her Total Score decreased 23 standard score points (see Table 2). In addition to the Total Score, Janet demonstrated Slightly Elevated to Very Elevated levels of anxiety in the following areas based on the pre-test scores: Separation Anxiety (*T*-score = 66), Generalized Anxiety Disorder Index (*T*-score =68), Social Anxiety (*T*-score = 63), Obsessions and Compulsions (*T*-score = 78), and Physical Symptoms (*T*-score = 63). Table 2 displays Janet’s pre-test and post-test scores on the MASC-2 by subtest. Scores of 60 and above were considered *Slightly Elevated* and warranted further attention and potential treatment. The *RCI* was calculated for Janet’s scores on the MASC pre and post-test. Statistically significant changes from the pre assessment to the post assessment were observed for 86% of the *RCI* scores calculated for Janet (see Table 4).
Table 3. *Mean Pre/Post T-Scores on the MASC-2*

<table>
<thead>
<tr>
<th>Participant</th>
<th>Total Score</th>
<th>Separation Anxiety/Phobias</th>
<th>GAD Index</th>
<th>Social Anxiety: Total</th>
<th>Obsessions and Compulsions</th>
<th>Physical Symptoms: Total</th>
<th>Harm Avoidance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre</td>
<td>Post</td>
<td>Pre</td>
<td>Post</td>
<td>Pre</td>
<td>Post</td>
<td>Pre</td>
</tr>
<tr>
<td>Janet</td>
<td>70</td>
<td>47</td>
<td>66</td>
<td>40</td>
<td>68</td>
<td>46</td>
<td>63</td>
</tr>
<tr>
<td>Kaitlin</td>
<td>73</td>
<td>52</td>
<td>75</td>
<td>44</td>
<td>72</td>
<td>57</td>
<td>71</td>
</tr>
<tr>
<td>Nick</td>
<td>61</td>
<td>65</td>
<td>66</td>
<td>58</td>
<td>66</td>
<td>68</td>
<td>53</td>
</tr>
<tr>
<td>Mean</td>
<td>68</td>
<td>54.67</td>
<td>69</td>
<td>47.33</td>
<td>68.67</td>
<td>57</td>
<td>62.33</td>
</tr>
<tr>
<td>Median</td>
<td>70</td>
<td>52</td>
<td>66</td>
<td>44</td>
<td>68</td>
<td>57</td>
<td>63</td>
</tr>
</tbody>
</table>

Note. Mean = 50; Standard Deviation = 10
Table 4. Reliability Change Indexes (RCI) for Students’ Pre/Post Scores on the MASC-2

<table>
<thead>
<tr>
<th>Participant</th>
<th>Total Score</th>
<th>Separation Anxiety/Phobias RCI</th>
<th>Sig?</th>
<th>GAD Index RCI</th>
<th>Sig?</th>
<th>Social Anxiety: Total RCI</th>
<th>Sig?</th>
<th>Obsessions and Compulsions RCI</th>
<th>Sig?</th>
<th>Physical Symptoms: Total RCI</th>
<th>Sig?</th>
<th>Harm Avoidance RCI</th>
<th>Sig?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Janet</td>
<td>7.26</td>
<td>Yes</td>
<td>4.13</td>
<td>Yes</td>
<td>3.83</td>
<td>Yes</td>
<td>5.67</td>
<td>Yes</td>
<td>9.11</td>
<td>Yes</td>
<td>3.20</td>
<td>Yes</td>
<td>-0.52</td>
</tr>
<tr>
<td>Kaitlin</td>
<td>6.62</td>
<td>Yes</td>
<td>4.93</td>
<td>Yes</td>
<td>2.61</td>
<td>Yes</td>
<td>-0.99</td>
<td>No</td>
<td>5.76</td>
<td>Yes</td>
<td>3.20</td>
<td>Yes</td>
<td>2.43</td>
</tr>
<tr>
<td>Nick</td>
<td>-1.54</td>
<td>No</td>
<td>1.56</td>
<td>No</td>
<td>-0.39</td>
<td>No</td>
<td>-0.98</td>
<td>No</td>
<td>-2.83a</td>
<td>Yes</td>
<td>-2.20a</td>
<td>Yes</td>
<td>.55</td>
</tr>
</tbody>
</table>

*Significance (Sig) on this scale indicates an increase in symptoms.*
Kaitlin. Kaitlin met with the researcher/clinician for intervention consistently each week, with the exception of the week of Thanksgiving, for a total of 10 weeks. Her sessions included three baseline data collections and a total of seven intervention sessions. Each intervention session was conducted as planned. There was not extra time after each session for coloring or card games, as there was for Janet, due to the excessive amount of time spent talking about the weather before each session began. Due to the unique nature and focus of Kaitlin’s anxiety, exposure techniques were utilized after each module instead of the interference modules (see Table 1). Kaitlin participated in one full exposure/practice session and several mini sessions after each intervention. During these sessions Kaitlin was presented with an anxiety provoking situations (based off her fear ladder scenarios). For each scenario Kaitlin explained how she would overcome each situation by utilizing techniques learned in the intervention sessions. In addition, informal interviews with Kaitlin’s teacher indicated an improved compliance to attend school, as reported to her by Kaitlin’s mother.

Weekly fear ladder ratings. Kaitlin completed an 8-item rating of self-identified fears or anxieties during each baseline and intervention session. The rating utilized a 10-point feelings thermometer, where a 0 indicated that the item triggered no fear in and a 10 indicated the item was anxiety provoking and caused a lot of fear. Kaitlin’s eight fears either involved the weather or feeling embarrassed during class. Kaitlin reported that she was not involved in any severe weather situations previously. Like Janet, Kaitlin reported that she had been having these thoughts and feelings for a long time. Figure 1 depicts how Kaitlin rated her fears during each baseline and intervention session. At the beginning of the intervention Kaitlin presented with an average score of 4.63 on each fear
ladder rating and at the end of the intervention she presented with an average score of 4.38 on each rating.

**Visual analysis.** Kaitlin’s fear ladder ratings present with a mild variability during the initial intervention sessions and ended with a more stable downward trend. In addition, due to the downward trend in the intervention data, representing a decrease in anxiety levels, an overall level (determined by the mean and median score on the dependent variable) for the data was not calculated. The observed effects of the anxiety intervention, as displayed in Figure 1 were not immediate for Kaitlin. She presented with a spike in fear ladder ratings during the second intervention session. In addition, Kaitlin’s data present with an overlap of scores due this spike in ratings. Kaitlin’s baseline data were slightly inconsistent demonstrating a variability among the data and her intervention data demonstrated an overall downward trend. An effect size of -0.08 ($d$-index) was calculated based on Kaitlin’s average fear ladder ratings (see Table 2). This change in scores corresponds with no effect found statistically.

**Pre/post outcome data.** Kaitlin’s MASC-2 pre-test Total Score was 73, which fell at the 81st percentile. On the post-test, Kaitlin’s Total Score was 52, a score within the average range and at the 47th percentile when compared to typical same-age peers; her Total Score decreased by 21 standard points. In addition to the Total Score, Kaitlin demonstrated Slightly Elevated to Very Elevated levels of anxiety in the following areas based on the pre-test scores: Separation Anxiety ($T$-score = 75), Generalized Anxiety Disorder Index ($T$-score = 72), Social Anxiety ($T$-score = 67), Obsessions and Compulsions ($T$-score = 66), Physical Symptoms ($T$-score = 63), and Harm Avoidance ($T$-score = 62). Table 2 displays Kaitlin’s pre-test and post-test scores on the MASC-2 by
subtest. Scores of 60 and above were considered *Slightly Elevated* and warranted further attention and potential treatment. Statistically significant changes from the pre assessment to the post assessment were observed for 86% of the *RCI* scores calculated for Kaitlin (see Table 4).

**Nick.** Nick met with the researcher/clinician for intervention inconsistently throughout the baseline and intervention sessions due to illness and school breaks. Similar to the other participants, Nick met for a total of 10 weeks. His sessions included three baseline data collections and a total of seven intervention sessions. Each intervention session was conducted as planned with added activities such as coloring and card games when time permitted. Due to the immediate decline in fear ladder ratings after intervention began interference modules were not utilized (see Table 1). Nick participated in one exposure/practice session where he was presented with several anxiety provoking situations (based off her fear ladder scenarios). For each scenario Nick explained how he would overcome each situation by utilizing techniques learned in the intervention sessions. In addition, informal interviews with Nick’s teacher indicated an overall improvement in Nick’s organizational skills.

**Weekly fear ladder ratings.** Nick completed an 8-item rating of self-identified fears or anxieties during each baseline and intervention session. His 8 anxieties were all school related and consisted of worrying about grades to worrying about being bullied by his peers. The rating utilized a 10-point feelings thermometer, where a 0 indicated that the item triggered no fear in and a 10 indicated the item was anxiety provoking and caused a lot of fear. Figure 1 depicts how Nick rated his fears during each baseline and intervention session. At the beginning of the intervention Nick presented with an average
score of 4.75 on each fear ladder rating and at the end of the intervention he presented with an average score of 3.5 on each rating.

**Visual analysis.** Nick’s fear ladder ratings present with a mild variability during the intervention sessions. Intervention began with an overall downward trend, with the exception of the final data point. In addition, due to the overall downward trend in the intervention data, representing a decrease in anxiety levels, an overall level (determined by the mean and median score on the dependent variable) for the data was not calculated. The observed effects of the anxiety intervention, as displayed in the graph (see Figure 1), were not immediate for Nick. He presented with a spike in fear ladder ratings during the last intervention session. In addition, Nick’s data present with an overlap of scores due to this spike in ratings. Nick’s baseline data were slightly inconsistent demonstrating a variability among the data and his intervention data demonstrated an overall downward trend. An effect size of -1.48 ($d$-index) was calculated based on Nick’s average fear ladder ratings (see Table 2). This effect size reflects a large effect.

**Pre/post outcome data.** Nick’s MASC-2 pre-test Total Score was 61, which was at the 73rd percentile. On the post-test, Nick’s Total Score was 65, which is in the elevated range and at the 77th percentile when compared to typical same-age peers; his Total Score increased by 4 standard points. This elevated score could, in part, be due to a lack of understanding of the questions on the MASC-2. In addition to the Total Score, Nick demonstrated Slightly Elevated to Very Elevated levels of anxiety in the following areas based on the pre-test scores: Separation Anxiety ($T$-score = 66), Generalized Anxiety Disorder Index ($T$-score = 66), and Obsessions and Compulsions ($T$-score = 63).

Table 2 displays Nick’s pre-test and post-test scores on the MASC-2 by subtest. Scores of
60 and above were considered *Slightly Elevated* and warranted further attention and potential treatment. Statistically significant changes from the pre assessment to the post assessment were observed for 29% of the *RCI* scores calculated for Nick (see Table 4).

**Overall Group Effectiveness.** Significant reductions in fear ladder ratings were present for Janet. At the beginning of the intervention Janet presented with an average score of 10 on each fear ladder rating and at the end of the intervention she presented with an average score of 0 on each rating. Students 2 and 3 presented with minimal reductions in fear ladder ratings (Figure 1) throughout the intervention. Initial ratings yielded average scores of 4.63 (Kaitlin) and 4.75 (Nick) on the fear ladder while the average ending score was 4.38 (Kaitlin) and 3.5 (Nick). The average effect size (\(d\)-index = -1.07), a large effect size, was calculated for the entire group to determine an overall intervention effect based on the weekly fear ladder ratings.

On the MASC-2 statistically significant reductions in *T*-scores were observed on 86% of the scales for Janet and Kaitlin, but not on any of the scales for Nick. Nick reported a change that was statistically significant on 25% of the scales, but in the opposite direction (i.e., increases in anxiety were reported). Janet and Kaitlin demonstrated statistically significant reductions in their Total MASC score, Separation Anxiety score, GAD Index (Generalized Anxiety Disorder), Obsessive Compulsive score, and the Physical Symptom score. Overall, the intervention was very effective for Janet, and was minimally impactful for Kaitlin and Nick.
CHAPTER V
DISCUSSION

Review of Purpose

Anxiety is the most common mental health disorder among the general population, with an early age onset. It can be characterized with by feelings of tension and worrisome thoughts (Maideen, Sidik, Rampal, & Mukhtar, 2015). Anxiety (and depression) affect children’s quality of life and put them at risk for several other negative life outcomes such as: poor academic achievement, poor professional achievement, substance abuse, mental health disorders, and suicidal behavior (Kösters, Chinapaw, Zwaanswijk, van der Wal, & Koot, 2015). Early intervention is critical for children who suffer from anxiety. Identifying anxiety and intervening early may help reduce the distressing and often overwhelming symptoms associated with anxiety (Kearny, Pawlukewicz, & Guardino, 2014). Despite the importance of early identification and intervention less than 20% of children and adolescents receive the mental health services that they need (Essau, Conradt, Sasagwa, & Ollendick, 2012).

The purpose of this study was to examine the impact of a cognitive-behavioral anxiety intervention on struggling students with anxiety in the school setting. To date, no known studies have examined the effectiveness of school-based interventions specifically for this population. Results from the present study indicated that the MATCH-ADTC
intervention demonstrated a positive effect, deceasing perceived levels of anxiety for two out of the three study participants. The third study participant demonstrated lower average fear ladder ratings but a higher post intervention MASC-2 score.

**Interpretation of Findings**

**Fear ladder ratings.** All students demonstrated reductions in fear ladder ratings at the conclusion of the intervention. The most significant result was for Janet, whose ratings reduced from an average of 10 during the first baseline session to an average of 0 on each rating during the last intervention session.

Janet’s fear ladder rating effect size is considered a large effect size and indicates a learned ability to apply and practice the skills learned in each session. Anecdotally, during the pre-intervention phase, Janet’s mother reported that she was very uncomfortable leaving her side and became anxious when she arrived home late from work. In addition, her mother reported that due to these anxieties Janet has never had a sleepover with friends. Upon the conclusion of the intervention Janet reported that she had her first sleepover scheduled for the following weekend and that she could not be more excited about it. Positive scores for Janet could be attributed to an overall acceptance of the intervention and in developing rapport with the researcher. On several occasions outside of the intervention time Janet sought out the researcher in order to discuss some of the concerns that she was having that day.

Kaitlin reduced her fear ladder ratings from an average of 4.63 on her first baseline rating to an average of 4.38 on her last intervention rating. Kaitlin’s fear ladder rating effect size presents with no statistical measurable effect and also indicates Kaitlin was unable to apply and practice the skills learned during each session. Although
Kaitlin’s fear ladder ratings decreased throughout the intervention, she did not apply the skills used during each session at the conclusion of the intervention. Informal teacher interviews revealed that several weeks after intervention concluded Kaitlin began refusing to come to school and presented with behaviors that were evident before the intervention started. Positive outcomes at the conclusion of the intervention could be attributed to an overall acceptance of the intervention. Kaitlin presented with the ability to remember the techniques learned during each intervention session but was unable to utilize them when faced with anxieties outside of the intervention setting. This would, in part, explain why she reverted back to many of the behaviors she exhibited before the intervention started.

Nick reduced his fear ladder rating from an average of 4.75 on the first baseline rating to an average of 3.5 on the last intervention rating. Nick’s effect size presents with a large effect size and also indicates a learned ability to apply and practice the skills learned during each session. During pre-intervention sessions Nick presented increased levels of anxiety in regards to his school work and grades. Despite teacher reports of improvement and a minimal reduction in his overall fear ladder ratings, the intervention was least beneficial for Nick. Although Nick reported his acceptability of the intervention he might not have enjoyed the activities as much as he reported. In addition, his anxieties may have been more severe than the other participants and, therefore, required more intense intervention strategies.

An overall effect size ($d$-index = -1.07) was calculated for the entire group, by averaging the weekly scores of the students, to determine an overall intervention effect based on the weekly fear ladder ratings. This overall large effect among intervention
participants indicates that the intervention itself is appropriate for students experiencing similar anxiety symptoms. An effect size of -1.07 indicates a large effect.

**MASC-2.** Results from the pre intervention MASC-2 scores indicated that Janet (T-score = 70) and Kaitlin (T-score = 73) presented with “Very Elevated” (many more concerns than are typically reported) MASC-2 scores. In addition, results from Nick’s (T-score = 61) pre intervention MASC-2 score indicated that he presented with “Slightly Elevated” (slightly more concerns than are typically reported) scores. Post-intervention MASC-2 scores for Janet revealed significant reductions in the Total MASC-2 score as well as significant reductions in the subsequent subscales. On the post-test, Janet’s Total Score was 47, well within the average range and at the 33rd percentile when compared to typical same-age peers; her Total Score was reduced by 23 standard points.

Post intervention scores for Kaitlin also revealed significant reductions in the Total MASC-2 score as well as significant reductions in the subsequent subscales. Kaitlin’s Total Score was 52, a score within the average range and at the 47th percentile when compared to typical same-age peers; her Total Score was reduced by 21 standard points. These positive reductions from pre-post assessment could be explained by their acceptability of the overall intervention. In addition Janet presented with a positive decrease in her anxieties because she was able to utilize the techniques learned in each session outside of the intervention room. This learned ability could have led to her significant decrease in her post MASC-2 scores from her pre MASC-2 scores. Kaitlin also presented with a mild ability to remember and utilize the techniques learned in each session. Her post MASC-2 score positively correlated with her mild decrease in fear
ladder ratings, however, Kaitlin was not able to continue to utilize techniques learned several weeks following the conclusion of the intervention.

Post-intervention MASC-2 scores for Nick revealed a mild increase in the Total Score as well as some of the subscales. Nick presented with a reduction on 2 out of a total of 10 subscales on the MASC-2 post-intervention. Nick’s Total Score was 65, falling within the elevated range and at the 77th percentile when compared to typical same-age peers; his Total Score increased by 4 standard points. Nick’s scores may have increased due, in part, to a lack of understanding of the questions on the MASC-2. Discrepancies among his favorable fear ladder results and his unfavorable MASC-2 scores could be related to how Nick was feeling on that particular day. Due to his minimal fear ladder effect size and, therefore, his minimal ability to apply skills learned Nick was unable to decrease his anxieties enough to lower his overall MASC-2 scores.

Limitations

Threats to internal and external validity should be considered when examining the results of the present study. The outcomes of this study should be interpreted with caution when generalizing to the broader population of students with anxiety and co-occurring academic skill deficits. Given the small sample size and the research design employed it may be difficult to generalize results to all settings where participants, environments, and demographics may differ. Additionally, the methodology used in this study was not implemented with full fidelity. Specifically, due to the nature of the school setting (i.e., working within the school calendar), it was not feasible to establish a stable baseline across participants before beginning the intervention. Participants began baseline data collection after qualifying for the study based on their initial MASC-2 score instead of
waiting for a stable baseline of the participant before. Each participant completed a total of 3 baseline data collection points before beginning intervention. Lastly, parents were given the ability to disclose any and all information given to them with their student. They were not instructed to refrain from explaining the purpose of study. This may have, unintentionally, set an expectation for students to demonstrate a reduction in fear ladder ratings for the researcher after each week’s intervention session.

Implications for Practice

The responsibility of educating students, including those with academic skill deficits, and meeting their needs within the Tier 1, 2, and 3 levels lies with each practitioner of the school. School psychologists play a prominent role in serving these learners by educating others, aiding in the identification process, developing appropriate accommodations, and implementing evidence-based interventions. In addition, school psychologists are in an excellent position to educate school personnel on the signs and symptoms of anxiety, as it often goes unnoticed within the school setting (Wright & Sulkowski, 2012).

Although MATCH-ADTC (a Tier 3 intervention) was effective for one of the three study participants, it has potential as an appropriate intervention to address the emotional needs of students who experience both anxiety and academic skill deficits. The intervention would be especially useful for students like Janet, who are disorganized in class and or participate rarely during class discussions. Although the intervention was not effective for Kaitlin, using the Tier 3 approach to intervention, the researcher determined that Kaitlin required more intensive supports in her areas of need. In addition, although the intervention was ineffective for Nick it was determined that he would benefit from a
second round with the intervention in order to assure understanding and an ability to carry interventions learned across settings. Study participants were informally asked about the acceptability of the intervention at the conclusion of the study. Each participant indicated the program was easy to follow and acceptable and appropriate for students their age. In addition, MATCH-ADTC is cost effective and though it requires previous knowledge of cognitive-behavioral principles, it does not require a significant amount of preparation on the part of the clinician. The intervention was feasible to implement within a school setting as it did not require participants to miss a significant amount of instructional time.

**Future Research**

This study can be expanded on in many ways in order to generalize its findings to a larger population of students. It is recommended that future studies utilize a larger sample size in order to increase reliability, validity and generalization to other populations. In addition, it is recommended that future studies establish a stable baseline before beginning the intervention phases to improve interpretation of outcome data within the multiple baseline design. In addition, this study only examined the effects of the cognitive-behavioral intervention on students with co-occurring anxiety and academic skill deficits. Future studies should examine the effects of such an intervention on other populations of students, for example, academically gifted students or students diagnosed with autism.

**Conclusion**

The present study examined if MATCH-ADTC, a modularized cognitive-behavioral intervention, would help improve perceived levels of anxiety for students who
were identified as having an academic skill deficit. The findings indicate that the intervention demonstrates efficacy in a school-based setting but requires further research to help support the generalizability of the findings. Such studies are needed to help close the gap existing in the current literature addressing intervention effectiveness for students who have anxiety and who also experience academic skill deficits.
REFERENCES


anxiety, depression, trauma, or conduct problems [MATCH-ADTC]. Satellite Beach, FL: PracticeWise.


APPENDIX A

CONSENT/ASSENT LETTERS

UNIVERSITY OF DAYTON PARENT/GUARDIAN CONSENT TO PARTICIPATE IN RESEARCH

If you and your child choose to participate, please return the signed permission slip on the last page with your child using the provided envelope. You may keep the other pages of this document for your reference.

Dear Parent,

Your child is invited to participate in a research study conducted by School Psychology Intern, Melissa D. Welch, from the University of Dayton, under the supervision of Dr. Elana Bernstein, Clinical Faculty. Participation in this study is voluntary. Please read the information below and decide if you would like your child to participate. If you have any questions, please direct them to Melissa Welch, School Psychology Intern, by phone at (330) 858-4547 or by email at welchm4@udayton.edu.

TITLE OF STUDY: HELPING STUDENTS WHO WORRY

PURPOSE OF THE STUDY: The purpose of this study is to examine ways to help students who worry excessively.

PROCEDURES: If you agree to allow your child to participate, s/he will first complete a survey to determine their current level of anxiety. This survey will be given individually and will take approximately 15-20 minutes, including explaining the study to your child and asking if they want to participate, reading the instructions, and completing the survey with the researcher/school psychology intern, Melissa Welch. Students who demonstrate moderate to significant anxiety on the survey will be eligible to participate in intervention sessions. If your child is accepted into the study, you will be contacted by the researcher to discuss your child’s school and anxiety history.

If you allow your child to participate, your child will meet with the researcher/school psychology intern weekly for 30-45 minutes (for approximately 10-12 weeks) to complete the intervention sessions. The sessions may involve completion of worksheets, playing games, talking about anxiety, and practicing newly learned skills. At the
conclusion of the study, the child will take the anxiety survey again to see if the sessions help.

**POTENTIAL RISKS AND DISCOMFORTS:** There is one possible risk with participation in my research project. You and/or your child may experience increased stress if scores on the anxiety survey indicate high levels of anxiety and potentially require further evaluation and/or intervention. The researcher, Melissa Welch, the school psychology intern, will offer suggestions for additional support if students don’t qualify for the intervention. In addition, Ms. Welch will offer support and additional resources for participants at the end of the intervention.

**ANTICIPATED BENEFITS TO PARTICIPANTS:** There a number of benefits associated with participation in my project. Benefits may include: (a) early identification of anxiety through the survey - research indicates that early identification leads to better treatment outcomes; (b) early intervention provided to your child to help reduce his/her anxiety; s/he will learn helpful coping skills to manage his/her anxiety at school and at home; and (c) participation will help us to learn more about how to improve school-based practices for working with students with anxiety

**CONFIDENTIALITY:** All information collected in this study will be kept confidential and under lock and key in a file cabinet at the Bellbrook-Sugarcreek school district and/or on a password protected computer. The assessment and intervention materials will only be available to my advisor (Dr. Elana R. Bernstein) and me. Students’ names will be coded using pseudonyms and will not appear in any data sets or publications.

**PARTICIPATION AND WITHDRAWAL:** Participation in the project is completely voluntary. If you and your child agree to participate, you are free to stop participating at any time, without penalty. Your child is also free to choose not to answer any questions that he/she is not comfortable with, without penalty. If you choose, you can view the questionnaire and treatment materials before agreeing/not agreeing to allow your child to participate in my project. If you experience any kind of discomfort as a result of your participation in this study, you may contact the primary investigator Melissa D. Welch at (330) 858-4547 and the project’s advisory committee chair Dr. Elana Bernstein at (937)-229-3644.

**IDENTIFICATION OF INVESTIGATORS:** If you have any questions about this research project, please contact one of the investigators listed below:

Melissa D. Welch, Principal Investigator, University of Dayton, School Psychology Graduate Student, (330) 858-4547, melissa.welch@bss.k12.oh.us.

Elana R. Bernstein, PhD, Clinical Faculty, Advisory Committee Chair, University of Dayton, Department of Counselor Education School & Human Services, School Psychology Program, (937) 229-3624, ebernstein1@udayton.edu.
RIGHTS OF RESEARCH PARTICIPANTS

If you have questions regarding your rights as a research participant, you may contact the Chair of the Institutional Review Board (IRB) at the University of Dayton: Dr. Mary Connolly, (937) 229-3493, MConnolly1@udayton.edu.

If you and your child choose to participate, please return the attached permission form with your child using the provided envelope. The other pages are for your records.

If you and your child choose to participate, please return this signed permission form (this page only) with your child using the provided envelope. The other pages are for your records.

TITLE OF STUDY: HELPING STUDENTS WHO WORRY RESEARCHER:
Melissa Welch, School Psychology Intern

Thank you for considering allowing your child to participate in this research project. If you consent to allowing your child to participate, please return this page with your signature to your child’s classroom teacher in the envelope provided.

Please feel free to contact Ms. Welch with any questions or concerns by phone at (330) 858-4547 or by email at welchm4@udayton.edu.

SIGNATURE OF PARENT/GUARDIAN OF RESEARCH PARTICIPANT

I have read the information provided above. I have been given an opportunity to ask questions and all of my questions have been answered to my satisfaction. I have been given a copy of the study information for me to keep.

Child’s Name (please print) _______________________________________

Parent/Guardian’s Name (please print) _____________________________

Parent/Guardian’s Signature ______________________ Date

Please return this page only with your child to school using the envelope provided.
UNIVERSITY OF DAYTON PARTICIPANT ASSENT

TITLE OF STUDY: HELPING STUDENTS WHO WORRY

Who is doing this research?
Melissa D. Welch, School Psychologist

Why should I do this?
The purpose of this project is to help students who feel nervous or worry a lot. Participating in the project may help you learn ways to worry less in school.

How long will it last and what will happen?
You will be asked to answer 50 questions about how you think and feel, which will take about 15-20 minutes. You will have to do this twice, at the beginning and end of the project. You will then meet weekly with the School Psychology Intern to learn about your worries, play games, and do activities to help you worry less. These sessions will take place one time a week for 30-45 minutes in the School Psychologist Intern’s office for about 10-12 weeks.

How will you feel?
You may feel nervous when sharing your feelings with me or when practicing your coping skills during times you experience worry.

Will anyone know I’m doing this?
Everything that we say in the weekly sessions will stay between you and the School Psychology Intern.

What if I have questions or am worried about something?
If you have questions, you may talk to the researcher/School Psychology Intern, Ms. Welch.

Your rights as the participant. If you have questions regarding your rights as a research participant, you may contact the Chair of the Institutional Review Board (IRB) at the University of Dayton: Dr. Mary Connolly, (937) 229-3493, Mary.Connolly@notes.udayton.edu

Consent to Participate
I agree to work with Ms. Welch and her team on this project. I understand all that is expected of me and I will do my best. Ms. Welch has answered all my questions. I understand that I may stop this project at any time.

Participant’s Name ________________________________ DATE ________________________________

Participant’s Signature ________________________________ Researcher’s Name ________________________________

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APPENDIX B

INTERVENTION MATERIALS

Fear Ladder

Date: ____________________
Filled out by:
☐ Child
☐ Mother
☐ Father
☐ Other ____________

ITEM

How scary is this item today? Please give a rating from 0-10.

_______
_______
_______
_______
_______
_______
_______
_______
_______
_______