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STUDENT ANXIETY AND PRACTICAL STRATEGIES
FOR THE SCHOOL SETTING: A LITERATURE REVIEW
SUBMITTED TO THE FACULTY
OF BETHEL UNIVERSITY

BY
CASSIE M. OTT

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF
MASTER OF ARTS

JUNE 2021

BETHEL UNIVERSITY

STUDENT ANXIETY AND PRACTICAL STRATEGIES
FOR THE SCHOOL SETTING: A LITERATURE REVIEW

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JUNE 2021

APPROVED

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Acknowledgements

I would like to thank my family for coming on this *long* journey with me and for supporting my goals in special education. I would particularly like to thank my husband, for the endless amount of patience he has had throughout this process. I would also like to thank my thesis advisor, Susan Larson, for her attention to detail and putting up with all my back-and-forth.

Abstract

Since 2010, anxiety levels have risen worldwide. Children and adolescents are particularly susceptible to anxiety as they experience varied life challenges. Considering anxiety disorders most common in youth (generalized anxiety disorder (GAD), separation anxiety disorder (SAD), social phobia (SP), and test anxiety), this thesis delves into research focused on diagnoses with comorbid anxiety (including Depressive Disorders (DD), Autism Spectrum Disorder (ASD), Attention Deficit-Hyperactivity Disorder (ADHD)), and the underlying causes of anxiety. To clarify the research questions regarding symptom identification and successful strategies to use in school settings, the literature review provides information about symptoms, anxiety behaviors, and the impact on academic performance. Useful resources and strategies that help alleviate anxiety and encourage academic success are provided.

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Chapter 1

The anxiety of youth and adolescents is a widespread concern in the 21st century. Anxiety presents a variety of challenges in educational settings, from lack of engagement to fear of failure, among a plethora of academic and social issues. In the last ten years, scholars have investigated: the origins of specific anxieties and comorbidities, how anxiety is expressed, and sought strategies to alleviate symptoms. Familiarity with this body of literature provides educators a variety of insights, resources, and strategies to support students with anxiety in an educational setting. Understanding and responding to student anxiety will result in greater academic achievement and social skills awareness.

Anxiety is a mental health disorder characterized by pervasive feelings of worry or fear that can interfere with every-day activities and interactions. According to the Center for Disease Control (June, 2020), approximately 4.4 million children (7.1%) aged three to 17 years have been diagnosed with anxiety in the United States. More than one in three children with anxiety have a comorbid diagnosis for behavior problems. An additional one in three school-aged children have been diagnosed with depression.

Over the last 15 years, anxiety disorder diagnosis rates have increased in school-aged children. Between 2007 and 2012, diagnosis rates increased from 5.5% to 6.4% (CDC, 2020). In 2020, rates have increased to 7.1%. Research reveals the most common types of anxiety diagnoses for children and adolescents include: generalized anxiety disorder (GAD), separation anxiety disorder (SAD), social anxiety disorder (or social phobia, SP; including selective mutism), and test anxiety.

Often, schools lack the resources to support the increasing number of students with anxiety. School counselors and social workers are overloaded with the number of students that

they service each week, hardly beginning to address the vast needs of the students. Schools have put in place a number of tiered systems to provide student assistance; specifically, Response to Intervention (RtI) focused on identifying and supporting students who struggle academically. Researchers Sulkowski, Joyce, and Storch (2011) discussed how this multi-tiered system of support (MTSS) supports students with anxiety. MTSS includes Tier 1: universal screening and dissemination of developmentally appropriate primary prevention services; Tier 2: targeted services to at-risk youth, often within a small group or with the assistance of related services personnel; and Tier 3: aggressively targeted to students who do not respond to Tier 1 or 2 interventions, often administered individually within the general or special education setting). The researchers discussed tools that identify the needs of students with anxiety at each level (pp. 939-940).

At tier 1, Sulkowski et al. (2011) reviewed screeners such as the Social Skills Improvement System (SSIS), used to identify students at-risk for academic or behavioral issues (p. 942). However, the researchers stated that specific Tier 1 interventions for youth with anxiety were often not implemented routinely as these youth are often not as difficult to manage as youth with externalizing behaviors so therefore they were overlooked (p. 943).

To identify youth in need of Tier 2 services, schools utilizing a tiered system use a more comprehensive approach to address anxiety. Sulkowski et al. (2011) provided a list of tools such as self-reporting surveys, observations, and behavior rating scales such as the Behavior Rating Scale for Children, Second Edition (BASC-2) [Pearson has since published the third edition, which began production in 2015] and the Conners 3rd Edition (Conners-3). Services provided for students with needs at this level include small-group intervention/therapy or the use of computer-

or group- based Cognitive Behavioral Therapy (CBT) programs which will be discussed in Chapter 2 (p. 943).

Progress monitoring is essential to the success and progress of an RtI model. Data collection begins at baseline and measures treatment/intervention effects over time. Qualitative observations can be used, along with instruments such as the BASC-2 Progress Monitor. When students reach Tier 3, it means they have shown little progress with universal or selective interventions and require increased direct support. These students reportedly make up the minority, with only 1-5% of students receiving Tier 3 supports. At this time, two questions must be answered: Is the student performing significantly below the norm in terms of functioning and are they failing to make adequate progress despite receiving high quality intervention services (pp. 943-944)?

Implementing a high-quality tiered intervention system for each student who needs it can be daunting for any school or teacher. Even with systems in place, some schools do not implement tiered systems with fidelity. When a student continues to fail despite best intentions, the student may be referred for a special education evaluation. There are a growing number of students who qualify for special education services, which is what I see most often as a special education teacher. Students who qualify for special education services are protected under the Individuals with Disabilities Act (IDEA), which Congress reauthorized in 2004. According to the Federal Department of Education IDEA webpage (2018) the purpose of IDEA is to ensure that students with disabilities are provided a free and appropriate public education, ensure the rights of students and their parents are protected, to assist states and other government/education agencies to provide for the early intervention and education of all children with disabilities, to

ensure that educators and parents have the necessary tools to improve educational outcomes, and to assess and ensure the effectiveness of efforts to educate children with disabilities.

In Minnesota, when a student is referred for a special education evaluation, a team is assembled to determine the necessary assessment procedures needed for a comprehensive evaluation. Often, students with anxiety are assessed for qualification under the Other Health Disabilities (OHD) criteria. The Minnesota Department of Education has a checklist of criteria that must be met in order for a student to qualify for special education services under the OHD label.

For an initial evaluation, a written and signed document must be provided by a physician or licensed health care provider diagnosing the health condition dated within the previous 12 months. Under federal guidelines part B, students must also display at least three of the listed adverse effects that deter their ability to complete educational tasks within a routine timeline. The adverse effects must include three of the following: excessive absenteeism, specialized health care procedures, medications that negatively affect learning and functioning, limited physical strength, limited endurance, heightened or diminished alertness, impaired ability to manage and organize materials, and an impaired ability to follow directions or initiate and complete tasks. Finally, students must meet criteria documenting unsatisfactory educational progress as determined through the comprehensive evaluation, including: individually administered, nationally normed standardized measures of academic performance; documented, systematic interviews conducted by a special education teacher; one or more systematic observations in the classroom; a review of the student's health history, including medical diagnosis; and a records review. If a student qualifies for special education services, they are lawfully entitled to accommodations, modifications, and services documented in their

Individualized Education Program (IEP) until the time they no longer qualify as determined through reevaluation or until they graduate from high school.

With the growing number of students diagnosed with anxiety ultimately being referred for special education services, how do schools identify students before a special education referral is made? In my practice as a special education teacher, I encounter students daily with varying levels of anxiety. Some have amazing care plans and strategies to use when confronted with a stressful situation. Others have no support other than what they are can receive at school. In many schools, the only resources available to students are from the school social worker, counselor, or school psychologist. Yet, these students spend the majority of their time in classrooms with teachers who do not have the resources or strategies to attend to the student's immediate needs to enhance learning for all.

This thesis is informed by my practical experience working with special education students and has shaped the research questions which guide the literature review. I will seek to answer the following practical questions: How can teachers recognize different types of anxieties in students? What tools and strategies can be used to enhance social emotional and academic learning in students in all students, and specifically those with anxiety? This thesis aims to answer these questions through a review of literature regarding the most common types of anxiety seen in school-aged children; the comorbid diagnoses that often accompany anxiety; the behaviors and indicators frequently observed in students with anxiety; and the possible causes of anxiety. The project also seeks to provide research-based information about different tools and strategies that can be used in classroom settings that will alleviate anxiety symptoms and provide an open learning environment for all students.

Chapter II

Search Parameters

To complete the literature review for this thesis, searches of Academic Search Premier, ERIC, EBSCO MegaFILE, JSTOR, PsycINFO, and Google Scholar. Academic articles pertaining to the following search parameters were searched for dates included from 2009 to 2020. Key words used in these searches included “anxiety (youth & adolescents),” “generalized anxiety (youth & adolescents),” “social anxiety (youth & adolescents),” “separation anxiety,” “selective mutism,” “test anxiety,” anxiety comorbidities,” “anxiety & comorbid ADHD,” “anxiety & comorbid depression,” “anxiety & comorbid ASD,” “anxiety symptoms (youth & adolescents),” “behaviors of anxiety in youth & adolescents,” “anxiety & education,” “anxiety in the educational setting,” “interventions for anxiety (in the educational setting),” “cognitive behavioral therapy/anxiety/education,” “FRIENDS program,” “Cool Kids program,” “mindfulness & anxiety,” “yoga & anxiety,” “RtI & anxiety,” and “MDE Other Health Disabilities.” This chapter will review the literature through several sections in the following order: Specific Anxiety Disorders; Anxiety Comorbidities; Trauma and Anxiety; Symptoms and Behaviors of Anxiety Disorders; School Performance in Children and Adolescents with Anxiety; Prevention and Treatment Strategies; and Referral.

Specific Anxiety Disorders

Generalized Anxiety

According to many researchers, Generalized Anxiety Disorder (GAD) is the most commonly diagnosed of the anxiety disorders. According to the American Psychiatric Association, as of 2017 two percent of Americans have been diagnosed with GAD. The Diagnostic and Statistical Manual of Mental Health Disorders, fifth edition (DSM-V) states that “the key features of generalized anxiety disorder (GAD) are persistent and excessive anxiety and

worry about various domains” (p. 190). In children and adolescents this often relates to their academic and non-academic competence or quality of performance in related activities. Anxiety creates impairments in social, occupational, or other critical areas of functioning. At least three of the six key criteria must be met to receive a diagnosis of GAD as an adult and only one criterion as a child: restlessness, being easily fatigued, difficulty concentrating, irritability, muscle tension, or sleep disturbance. The symptoms must be present for at least six months to be considered GAD (DSM-V, pp. 191-192).

Though there has been significant research on the topic of generalized anxiety disorder, researchers such as Cassidy, Lichtenstein-Phelps, Sibrava, Thomas, and Borkovec (2009) felt that little was known about its precursors. Their research established evidence to theorize that attachment to family and caregivers may provide a clue into how GAD presents itself. Cassidy et al. (2009) conducted a study in which they asked adults diagnosed with generalized anxiety to reflect on their childhood attachment with primary caregivers. Compared to non-anxious controls, researchers found that adults who presented with GAD symptoms reported that as children they had to assume the role of the parent and did not feel loved or cared for. Several of the participants with GAD reported experiencing more vulnerability with their mothers compared to fathers (p. 29).

Besides perceived attachment quality issues in childhood, researchers explored other factors to learn how GAD develops. A child’s temperament is one factor that includes behavioral inhibition, neuroticism, and harm avoidance. Researchers Crocetti, Hale, Dimitrova, Gao, and Pesigan (2015) examined these factors to determine cultural and gender differences in samples of adolescents in six different countries.

Several key terms should be defined to better understand this study. Crocetti et al. (2015) did not use the term temperament. Instead, they looked at a child's identity processes, including *commitment*, *in-depth exploration*, and *reconsiderations of commitment*. For this study, researchers defined *commitment* as the enduring choices individuals have made and the self-confidence they derived from those choices. *In-depth exploration* referred to the extent which individuals thought about their choices and reflected on their decisions. *In-depth exploration* was associated with both curiosity and confusion. Lastly, *reconsiderations of commitment* represent the comparison of existing commitments with possible alternatives because current ones were unsatisfactory. This could sometimes lead to identity crisis (p. 163).

When discussing culture, Crocetti et al. (2015) defined two types: *individualistic* and *collectivistic*. In *individualistic* culture, people valued uniqueness and individual autonomy. In this type of culture, a sign of good mental health is viewing oneself and one's accomplishments in a positive manner. In a *collectivistic* culture, people highly value their relationships. In this type of culture, viewing oneself in a highly positive manner may be a sign of maladjustment (p. 161).

A total of 3,445 participants from general populations, between the ages of fourteen and eighteen participated in the study. Of the participants 369 were from Bulgaria, 836 were from Italy, 712 from the Netherlands, 295 from China, 331 from Kenya, and 902 participants were from the Philippines. Gender was split evenly for all countries except Kenya, where only 38% of participants were female (p. 164). The results of the study determined a significant rate of difference in most countries between genders, with girls reporting higher rates of anxiety symptoms than boys. The researchers stated that this finding was consistent with a variety of other research (p. 166).

Overall, adolescents from the Netherlands reported lower levels of GAD symptoms and higher levels of satisfaction with life. The adolescents from the Netherlands reported having a larger array of alternatives when reconsidering commitments, indicating that finding meaningful commitments had a beneficial effect on GAD. This also applied to adolescents from Italy and China. In line with researcher expectations, reconsideration of commitment was more associated with distress in collectivistic countries such as Bulgaria, Kenya, and Philippines. In fact, Filipino participants displayed the highest levels of GAD symptoms. Crocetti, et al. (2015) explained that this could be due to high poverty levels, expectations to do well in school, obligations to family (interdependence), and a growing influence of individualism that creates cultural tension (pp. 168-169). Results suggest a strong relationship between GAD symptoms and identity processes.

Though there are many factors seen in childhood and adolescence that lead to generalized anxiety disorder diagnoses, GAD tends to be over diagnosed in children according to the DSM-V. A true diagnosis of GAD tends to occur in individuals over thirty-years old. Over diagnosis may occur because many of the symptoms of other disorders tend to present themselves as those of generalized anxiety (p. 224). Children who have a true diagnosis of generalized anxiety have a greater likelihood of an accompanying comorbid disability (p. 226). Comorbidity will be discussed later in this thesis.

Separation Anxiety

Separation Anxiety in children and adolescents is defined as having developmentally inappropriate feelings of fear and worry about being separated from those to whom you are attached that lasts for at least four weeks. These feelings may also cause significant impairment in social, academic, occupational, or other areas of daily functioning (DSM-V, pp. 189-191). Children with separation anxiety disorder (SAD) may exhibit social withdrawal, apathy, sadness,

or may have difficulty concentrating on work or play. Other symptoms of separation anxiety include a constant fear of something bad happening such as being kidnapped, repeated nightmares about separation, and somatic symptoms such as headaches and stomachaches when separation from a loved one is anticipated (Mayo Clinic, 2018).

According to the DSM-V (2013), the prevalence of SAD in children is around 4% and 1.6% in adolescents. SAD is most prevalent in children under twelve years old and often more common in females versus males. SAD may be caused by several environmental factors including life stress (immigration, a change in schools, loss of an attachment figure) and parenting styles.

In their study, researchers Herren, In-Albon, and Schneider (2012) measured parents' feelings about their own parental self-efficacy and cognitions. The researchers used parental factors to determine children's levels of separation anxiety symptoms and internalizing behaviors. Herren et al. (2012) wanted to know the connections between a child's anxiety and parental beliefs about that anxiety, between a child's anxiety and parental feelings of self-efficacy, and between parental dysfunctional cognitions about their child's anxiety and the effects on the child's internalizing behaviors (p. 54).

It is important to note two key terms, *parental cognitions* and *parenting self-efficacy*, to understand the context of the study. *Parental cognitions* are the beliefs a parent has regarding their child's ability to function within normal contexts. Dysfunctional beliefs are those that determine that a child is incapable of using coping strategies in certain situations. *Parenting self-efficacy*, according to the study, "refers to the degree to which a parent feels competent and confident in handling-child related problems" (p. 54).

The study included 94 German-speaking students with a current diagnosis of separation anxiety, 33 children diagnosed with social phobia, and 44 non-anxious control children. Female participants made up 53% of the sample, while 47% of participants were male. Students ranged in age from five to 14 years. Participating parents included 171 mothers (100%), ranging in age from 29 to 52 years. One-hundred and forty-five fathers, representing 85%, ranged in age from 27 to 79 years (p. 55). Several instruments were used to measure child psychopathology, parental psychopathology, and parental beliefs.

The results indicated that when a child had been previously diagnosed with an anxiety disorder, both maternal and paternal dysfunctional beliefs about their child's ability to cope was positively correlated with the child's actual symptomology of separation anxiety (p. 58). It was also found that a mother's parenting self-efficacy positively correlated with a child's internalizing behaviors of SAD (i.e. fearfulness, social withdrawal, and somatic complaints), however paternal self-efficacy was not shown to be positively associated. There was a significant connection between parenting self-efficacy and child avoidance of separation situations found only for fathers. The researchers hypothesized that the correlation between paternal self-efficacy and internalizing symptoms of SAD had to do with a father's inability to accept the child's behaviors (p. 58).

While children are greatly influenced by their parents, they also spend a significant amount of time with teachers in the school setting. Masoumparast (2016) found that the level of a teacher's emotional intelligence and self-efficacy played a direct role in the reduction of students' levels of separation anxiety symptoms. Though the research was conducted in Iran, direct implications for teacher-student relationships around the world were noted.

Masoumparast (2016) conducted this study with 345 first grade teachers and 280 first grade students previously diagnosed with separation anxiety disorder (SAD). The Bar-On Emotional Inventory (EQ-i) measured teachers' emotional intelligence. The Scale of Schwarzer and Jerusalem measured teachers' levels of self-efficacy. According to the study, *emotional intelligence* was defined as one's ability to monitor their own feelings and the feelings of others, distinguish between emotions, to regulate emotions in social situations, and use the emotional information they gather to direct their thoughts and actions (p. 185). *Self-efficacy* referred to "one's belief about his capabilities to organize and execute courses of action for management and situations which will happen in the future" (p. 186).

The results of the study indicated a significant correlation between higher levels of emotional intelligence and self-efficacy in teachers and a decrease in symptoms of separation anxiety in students. Researchers found that teachers with higher self-efficacy and emotional intelligence looked for new opportunities and persevered with their work. They tended to make students feel more friendship, happiness, enthusiasm, interest, and comfort when they interacted.

Social Phobia (Social Anxiety)

Social Phobia (also known as social anxiety) is characterized as a persistent fear of social or performance situations in which a person may be exposed to unfamiliar people and/or scrutiny from others (DSM-V, 2013). According to the DSM-V, the phobic/avoidant behaviors in children must occur in settings with peers and are expressed in terms of age-appropriate distress, such as crying, cringing, or displaying obvious fear or discomfort. In the United States, 75% of those with social anxiety experienced onset between the ages of eight and 13 years. Onset can either be slow and subtle or sudden, triggered by a specific event.

Beesdo-Baum, Knappe, Fehm, Hofler, Lieb, Hofmann, and Wittchen, (2012) conducted a longitudinal study to determine the persistence of social phobia through childhood in terms of stability and remission. Researchers considered different threshold levels and comorbid diagnoses (p. 412). Participants between the ages of 14 and 24 were drawn from government registries in Munich, Germany. All 3,021 participants were administered an initial interview. The first follow-up interview, one to two years later, included subjects between ages 14 and 17. Follow-up interviews were conducted for all remaining participants at three to four years later and again at seven to 10 years later. The assessment results found that 209 participants continued to meet the DSM criteria for social anxiety disorder (social phobia - SP), which was 6.6% of the original pool (p. 413).

Results of the study demonstrated consistency with the prevalence of social phobia throughout the research and worldwide. The findings that social anxiety began in childhood or early adolescence were consistent with other studies. Considering the persistence of social anxiety, Beesdo-Baum et al. (2012) showed that individuals with social anxiety suffered from its symptoms for at least 50% of the years observed following the initial onset. It was also found that persistent rates tended to be slightly lower when follow-up occurred further from initial diagnosis (p. 421).

Additional conclusions from the study stated that both the diagnostic stability of social phobia over the DSM threshold and complete remission were rare in subjects with SP. Generalized and early onset social fears had the highest persistence and stability. Lastly, the results of the study concluded that individuals with more complex and severe symptomology, and symptoms of comorbid disorders, could help predict a persistent and stable course for social phobia.

To expand on the childhood and adolescent social phobia research, Van Niekerk, Klien, Allart-van Dam, Hudson, Rinck, Hutschemaekers, and Becker (2017) studied the role of cognitive factors in social phobia (SP). The researchers believed that children and adolescents who had SP feared any situation where they must perform tasks in front of others for which they may be judged. They believed that individuals also viewed themselves as less socially skillful and were convinced that this belief would be confirmed by being rejected in social situations. The goals of the study were to investigate connections between social threat thoughts, trait social anxiety, state anxiety, and perceived social skills during a speech assignment; and testing whether trait social anxiety was related to social skills deficits or an underestimate of social skills (p. 490).

For the purposes of the study, *state anxiety* referred to the psychological and physiological reactions to adverse social situations. *Trait anxiety* referred to the stable individual differences in reactions to state anxiety in anticipation of an adverse social situation. *Social threat thoughts* were related to thoughts of social rejection, for example, being bullied (p. 491).

A selection of 141 children with varying degrees of social phobia, 40 of whom were boys, were chosen from a pool of 718 students from 11 different elementary schools participating in a larger study about anxiety and avoidance. Children's ages ranged from eight to 13 years. Researchers used the Social Anxiety Scale for Children-Revised (SASC-R), the social anxiety subscale of the Screen for Child Anxiety Related Emotional Disorders (SCARED-71), and the Behavioral Inhibition Questionnaire (BIQ) to ensure that anxiety levels were evenly distributed among the participants. Children participated in two one-hour sessions. During the second session, children were required to video tape a two-minute speech (p. 493).

Results indicated that social threat thoughts were related to lower self-perception of social skills. Threat thoughts were also found to “mediate the relationship between trait social anxiety and state anxiety after a speech task” (p. 494). Researchers also found that children with higher trait SP tended to underestimate their performance but were not observed to have poorer social skills than children with lower trait SP. These findings were consistent with other cognitive theories of social phobia (p. 494).

With the course and traits of social anxiety in mind, Rao, Beidel, Turner, Ammerman, Crosby, and Sallee (2007) compared the presentation of SP among children and adolescents. Their goal was to determine if children and adolescents were equally impaired with the disorder and whether adolescents were more likely to avoid social situations.

Participants included 150 children aged seven to 17 year who met DSM criteria for a primary diagnosis of social phobia. Several participants represented diverse cultural and ethnic backgrounds. Eighty-five percent of the participants came from families within the middle three socioeconomic categories. Participants were put into two categories: children, aged seven to 12 years, and adolescents, aged 13 to 17 years (p. 1183).

The results showed that broad measures of SP indicated moderate and equivalent levels of social distress in both children and adolescents. Though adolescents endorsed significant anxiety across a broader range of situations, the impact was equal for both children and adolescents (p. 1188).

There were differences worth consideration when comparing childhood and adolescent SP. Children had a broader pattern of general psychopathology, displayed significantly fewer social skills and more anxiety, indicating that perhaps adolescents have at least enough skills training to respond appropriately when necessary. However, adolescents endorsed a broader

pattern of fear and avoidance compared to younger children. For adolescents with social phobia, physical and cognitive maturity and cultural expectation for independence in social encounters, may result in a broader pattern of social avoidance (pp. 1188-89).

Selective Mutism

Unruh and Lowe (2013), in the Encyclopedia of Special Education, defined selective mutism (SM) as a psychological disorder in children characterized by a lack of speech in at least one specific environment, such as the classroom, despite the presence of speech in other situations. Most often, researchers believed that SM was due to an underlying anxiety disorder, commonly seen in children with social anxiety disorder. Common risk factors for selective mutism include recent migration, complications during pregnancy and delivery, delayed motor development, other speech and language disorders, and atypical patterns of social interaction such as withdrawal, anxiety, depression, and schizoid-type behaviors (pp. 1-2).

Muris, Hendricks, and Bot (2016) examined the relationships between behavioral inhibition, anxiety symptoms (particularly those of social phobia), and selective mutism (SM) in a non-clinical sample of children aged three to six years. Researchers hypothesized that higher levels of inhibition and (social) anxiety symptoms would be accompanied by higher levels of SM (p. 95).

According to the researchers, the mean age of onset of SM was five years, though many parents did not seek clinical diagnosis until the issue arose when students first attended school. Selective mutism research also suggested that the duration of clinical SM was approximately eight years. However, this did not mean that children who presented with SM earlier in life did not continue to have other communication, academic, and psychological issues (p. 94-95). In

fact, children with SM tended not to perform well academically and displayed higher rates of psychiatric disorders later in their development (p. 95).

It is important to note the definitions of key terms related to this study to understand the overall purpose and results. As it pertains to the Muris et al. (2016) study, the definition of selective mutism (SM) was similar to that used in other research. *Selective mutism* is the lack of communication in certain social situations in which children are required to speak, often at school, where there is no lack of knowledge of communication skills. In relation to SM, the best indicators of *behavioral inhibition* are reticence in the presence of unfamiliar adults and the lack of spontaneous speech with unknown persons (p. 95). *Social phobia*, as described previously, is the fear of being judged negatively in social performance situations.

The study sampled 57 non-clinical children aged three to six years and administered two speech-related tasks. Parents were asked to complete an abridged version of the Behavioral Inhibition Questionnaire (BIQ-SF), the Preschool Anxiety Scale-Revised (PAS-R), and the Selective Mutism Questionnaire (SMQ). The assessments were conducted within the child's home with at least one parent present. The home evaluation was listed as a possible study limitation because children may perform differently if they perceive the task as not being entirely stress inducing with a parent present. Children were asked to perform a monologue in which they were given an example by the parent and provided with topics to discuss such as: their teacher, school activities, or other children. They were recorded while speaking. The second task was an interview for which parents were asked not to interfere during the process. The first four questions were open-ended, for which children were given no specific direction. The questions mirrored what spontaneous speech with an unfamiliar person may look like. For the last four

questions on the interview, children were directed to answer as elaborately as possible to determine their maximal response rate (p. 95-96).

The base results indicated several significant differences in both gender and age. On the parent-rating scales, parents indicated that girls exhibited higher levels of behavior inhibition, social anxiety symptoms, and selective mutism than boys. Results of the study also indicated that with increasing age, children used more words during the speech tasks and displayed lower levels of SM (p. 97).

When controlled for age and gender, three significant findings were reported. The researchers determined that behavioral inhibition was associated with higher levels of social phobia symptoms, other anxiety disorders, and selective mutism, and a smaller number of spoken words during speech tasks. This finding agreed with a variety of literature that considered selective mutism, which indicated that behavioral inhibition was shown to be a vulnerability factor for SM. Also, as hypothesized, SP symptoms were more strongly associated with symptoms of selective mutism and smaller numbers of spoken words than non-SP symptoms. Finally, the children who used more words during speech tasks also had parents who rated them as having lower levels of SM symptomology (p. 97).

Other researchers, such as Diliberto and Kearny (2015), sought to find relationships between selective mutism (SM) and behavioral disabilities, citing key differences between children with SM and children with social phobia. They looked at the relationship between SM and oppositional defiant behavior profiles. The purpose of the study conducted by Diliberto and Kearny was to elaborate on emerging research of the behavior profiles of children with SM. According to Diliberto and Kearny (2015), previous research revealed three main behavior profile groups of children with SM - anxious, anxious-mildly oppositional, and anxious-

communication delayed. The purely anxious group was the smallest subgroup. The research aimed to determine the differences and commonalities between anxious children with SM and oppositional defiant behaviors, and to recommend more informed diagnosis and treatment methods.

The researchers stated that “children with selective mutism and children with social anxiety share certain traits: shyness and behavioral inhibition, social skill deficits, separation anxiety, and socially reticent family members” (p. 17). However, children with SM also differed from children with anxiety in specific ways. Children with SM tended to be younger at the age of onset than those with other anxiety disorders. The researchers claimed that children with SM tended to have more vibrant social lives, even without the verbal component, than those children with other anxiety disorders. Diliberto and Kearny (2015) also stated that in some research, levels of social phobia were found to be lower in children with selective mutism than expected, which differed from the findings of Muris, Hendricks, and Bot (2016) stated above. Instead, some children with SM were described as having more oppositional behaviors. In clinical settings the children were characterized as aggressive, stubborn, disobedient, controlling, negative, manipulative, suspicious, oppositional, and demanding. Parents also described their SM children as strong-willed, stubborn, irritable, argumentative, and noncompliant (p. 17).

Diliberto and Kearny (2015) had four hypotheses. First, they would statistically derive anxious and oppositional behavior profiles in a clinical setting. Second, the anxious profile would be associated with social phobic symptoms but not aggressive behaviors or oppositional defiant disorder symptoms. Thirdly, an oppositional profile would be associated with aggressive behaviors and oppositional defiant disorder symptoms but not social phobia symptoms. And lastly, that both anxious and oppositional profiles would be associated with social problems,

albeit possibly in different ways (e.g., social withdrawal versus socially aggressive behavior) (p. 17).

In order to research these hypotheses, Diliberto and Kearny (2015) selected 57 participants receiving treatment for SM at a specialized clinic for youth with anxiety disorders through convenience sampling. The limited clinical measures, the Child Behavior Checklist (CBCL) and the Anxiety Disorders Interview Schedule – Parent Version (ADIS-P), were administered by advanced doctoral candidates in the clinical setting. Using these measures and through their analysis, the researchers supported the first, third, and fourth hypotheses and partially support the second hypothesis. Results indicated that anxious and oppositional behavior profiles were statistically derived. Anxious behavior profile scores were associated with social problems, social phobia symptoms, and aggressive behaviors. Oppositional behavior profile scores were associated with aggressive behaviors, oppositional defiant disorder symptoms, and social problems, and inversely with phobia symptoms (p. 19). Findings may indicate an overlap with anxious and oppositional behaviors, which supported the previously stated research.

Test Anxiety

Test anxiety has been researched extensively around the world, particularly in countries where standardized testing is used to measure student performance. Often, researchers examine the correlation of test anxiety with impacting factors such as grade level, gender, and behaviors. The literature reviewed below studied these concepts in a variety of ways.

In 2019, Utkun Aydin conducted a study to determine grade level differences in the manifestation of test anxiety. He stated that the evaluative measures we have come to live by may produce test anxiety for students early in life (p. 29). The current study was implemented because Aydin (2019) believed there was a gap in research regarding students' overall test

anxiety, including their thoughts, off-task behaviors, and autonomic reactions in testing environments. Though the study was completed in Turkey, its findings have relevance in other countries, such as the United States, where standardized tests are also a common occurrence.

For the purposes of Aydin's research, *test anxiety* referred to the cognitive, physiological, and behavioral responses surrounding concerns about the outcomes resulting from failure in evaluative situations. *Thoughts* referred to an individual's internal dialogue regarding evaluative situations. *Off-task behaviors* included becoming distracted by task-irrelevant stimuli and focus on nervous habits. *Autonomic reactions* are the somatic responses (stomachache, headache, body pain, etc.) to test-related stress (p. 30-31).

To test the hypotheses that students in the elementary grades exhibited higher levels of test anxiety, along with increased anxiety in terms of thoughts, off-task behaviors, and autonomic reactions than students in middle school, Aydin (2019) gathered 414 fourth grade (elementary) students and 201 sixth grade (middle school) students to participate in the study. The students, from three public elementary and middle schools, were administered the Children's Test Anxiety Scale (CTAS). The CTAS measures students' overall anxiety in relation to the specific components being studied (thoughts, off-task behaviors, and autonomic reactions) by asking participants to rate themselves in response to questions (p. 34).

Based on the student reports, Aydin (2019) found significant differences in the off-task behaviors and autonomic responses results. Elementary level students specifically displayed more off-task behaviors than did middle school students. The sixth-grade students reported slightly higher levels of nervous thoughts than did the fourth graders, however there was not a significant difference in this area (p. 41).

Aydin (2019) concluded that it may be possible that students develop coping strategies for test anxiety that relate to typical development for self-regulation and motivation as they move into higher grade levels. Students in higher grades are also often subject to more testing situations as a function of curricular differences and could just be less worried about failing as a result. The research into specific components of test anxiety may help to inform further research and educational practice as we learn more about the developmental aspects of the anxiety itself (p. 44).

Lohbeck, Nitkowski, and Petermann (2016) also conducted research with elementary-aged children in Germany. The researchers analyzed whether elementary school children's control cognitions, such as academic self-concept, and value cognitions, such as interest, influenced test anxiety and whether these relationships varied by gender. The researchers had three hypotheses: 1) that both academic self-concept and interest would be positively correlated, with both variables impacting test anxiety; 2) both academic self-concept and interest would negatively predict test anxiety; and 3) that gender played a regulating role among academic self-concept, interest, and test anxiety (p. 892).

The researchers expanded the definition of test-anxiety, stating that it was not only the worry about failure in an evaluative situation, but that test anxiety could also impair organized thinking by disrupting the ability to remember material at the time of evaluation (p. 888). It is also important to note the definitions of *academic self-concept* and *interest* in relation to the study. *Academic self-concept* pertained to the way a child thought about their academic performance. A positive self-concept was associated with more adaptive behaviors and positive emotions. A negative self-concept was related to dysfunctional behaviors and unpleasant

emotions such as test anxiety. *Interest* involved a child's preference for a specific topic or a positive experience when performing a task (pp. 888-889)

Study subjects included a sample of 192 fourth graders, recruited from six elementary schools in Lower Saxony, Germany aged nine to 12 years. To measure academic self-concept and interest, the researchers employed a modified German version of the Self-Description Questionnaire I (SDA-I). To measure test anxiety, a subscale of trait anxiety from the Anxiety Questionnaire for Students was administered in German (p. 893).

Lohbeck et al. (2016) found significant gender differences between boys and girls related to test anxiety with girls reporting higher levels of anxiety. A significant relationship between academic self-concept and interest was noted: children who perceived themselves as good in all academic domains reported more interest in all academic domains. However, while interest had no bearing on the amount of test anxiety reported, children with a lower academic self-concept reported higher levels of test anxiety. The study assumed that control cognitions (self-concept) were key antecedents of testing anxiety in elementary school children and not value cognitions (interest). The researchers suggested that enhancing a child's self-concept might decrease test anxiety. They recommended that universal strategies to increase self-concept should be further studied (p. 899).

Expanding test anxiety research, Von der Embse and Hasson (2012) conducted a study with students at the high school level regarding school setting, test anxiety, and student performance on high stakes tests. Von der Embse and Hasson (2012) sought to determine whether there was a correlation between school setting, student socioeconomic status, and test anxiety levels. They hypothesized that students in urban school settings would have higher levels of test anxiety than students in suburban school settings. They believed that there would be a

significant correlation between levels of test anxiety and student performance on a high-stakes test. Researchers also felt that test anxiety contributed to a variance in scores on high-stakes tests (p. 181).

Researchers gathered participants from two schools in Ohio: 35 tenth grade students from Oak Tree High School (a suburban school with 0% of students who identified as economically disadvantaged) and 40 tenth-grade students from Calvin High School (an urban school where 96.5% of students identified as economically disadvantaged). The students were chosen based on the requirement that all tenth-grade students in Ohio completed the Ohio Graduation Test (OGT). The researchers believed participants represented the population of each school. Participants were administered the Friedben Test Anxiety Scale (FTAS) to measure the social and cognitive components, and the physiological symptoms of test anxiety (pp. 181-182).

To understand the parameters of the study, it is important to consider two key concepts: *high stakes testing* and *adequate yearly progress (AYP)*. *High stakes testing* refers to any test that is used to make important decisions about students, teachers, schools, and districts regarding accountability - making sure that schools and teachers provide high quality and effective education. *Adequate yearly progress* refers to the method used to determine the efficacy of schools and school districts. Progress in both is measured based on standardized test scores.

The results of the current study indicated no significant correlation between school setting and test anxiety or performance, thus the hypothesis was not supported. It was found that students who reported higher levels of anxiety on the FTAS received lower scores on the OGT, no matter the setting. Data results focused on school setting (urban or suburban) accounted for an average of 47% variance on OGT performance (p. 183). The researchers indicated several negative consequences for students as a result of test anxiety and low high stake test scores: “not

graduating, failing to achieve a qualifying score on the ACT or SAT; a cycle of low achievement may begin with poor test scores leading to increased anxiety resulting in even lower performance on high-stakes tests” (p. 183). The results have significant implications for schools that do not meet AYP. Schools that do not consistently meet AYP, as is the case with many urban schools, are provided with fewer resources to address test anxiety (p. 184).

Von de Embse and Hassan (2012) implied that it falls to teachers to provide relief to students who have test anxiety. They stated that teachers should be aware of how they communicate the importance taking tests by avoiding negative phrasing such as, “You will not graduate if you do not pass this test,” in favor of more positive statements such as, “This is an opportunity to show what you have learned.” Teachers can also lead and teach students guided relaxation strategies before a test such as deep breathing, muscle relaxation, visualization, meditation, and positive self-talk (p. 185). These types of strategies will be discussed later in this chapter.

Anxiety Comorbidities

Research, such as the studies discussed below, have shown that anxiety co-occurs in several disorders, including: Depressive Disorders (DD), Attention Deficit Hyperactivity Disorder (ADHD), and Autism Spectrum Disorder (ASD). These disabilities are often found comorbid with anxiety in school-aged children and adolescents.

Comorbid Anxiety and Depressive Disorders

The National Alliance on Mental Illness (NAMI) (2020) reported that approximately 60% of people diagnosed with anxiety also showed symptoms of depression. Beth Salcedo, MD (2018), suggested three theories as to why anxiety and depression are so often comorbid: first, brain research indicates similar biological mechanisms; second, the symptomology overlaps so

people frequently meet both criteria; and third, the conditions can show up simultaneously when someone is triggered by external stressors. Salcedo (2018) also stated that when anxiety and depression present together the disorders can be harder to treat. Further research into the characteristics of comorbid anxiety and depression are discussed below.

Researchers O'Neil, Podell, Benjamin, and Kendall (2010) gathered information regarding clinical and familial characteristics of youth diagnosed with an anxiety disorder with or without a comorbid depressive disorder. They hypothesized that youth with anxiety and a comorbid depressive disorder were older, had lower levels of functioning, and had more severe anxiety and depressive symptoms than youth with anxiety and no comorbid depressive disorder (p. 332). They labeled the two groups as AD-DD (youth with comorbid anxiety and depressive disorders) and AD-NDD (youth with anxiety disorder and no depressive disorder).

The participants included 200 children and adolescents aged seven to 17, and their parents, who presented for treatment at an anxiety clinic at Temple University. The majority of participants were categorized as Caucasian children (aged seven to 12) predominantly middle to upper-middle class. Based on several diagnostic assessments and measures, the researchers found that 97 participants had a primary diagnosis of generalized anxiety disorder (GAD), 59 had a primary diagnosis of social phobia (SP), and 44 participants had a primary diagnosis of separation anxiety disorder (SAD). All other anxiety disorders were excluded from this study (p. 332). Of the 200 participants, only 24 were diagnosed with a comorbid depressive disorder (DD), major depressive disorder (MDD), or both (p. 334).

As O'Neil et al. (2010) hypothesized, participants with a comorbid anxiety and depressive disorder were significantly older than participants with only anxiety. Those with comorbid disorders also had lower levels of functionality, as was predicted. Participants with

AD-DD reported more severe levels of social anxiety symptoms, but not more severe total anxiety symptoms or higher levels of depressive symptoms. Researchers noted that this finding was inconsistent with previous research where participants reported higher levels of anxiety symptoms overall. Participants with AD-DD and their mothers reported higher levels of family dysfunction than youth with AD-NDD. There were no significant findings regarding gender, ethnicity, or rates of anxiety and externalizing comorbidities (p. 335-338).

Regarding internalizing feelings, participants with comorbid anxiety and depressive disorders were more likely to indicate feelings of sadness, to negatively evaluate their abilities, and to report deficiencies in their ability to experience pleasure than those with no comorbidity. However, youth with AD-DD did not endorse symptoms of negative self-esteem or interpersonal problems at higher rates than those with AD-NDD. This indicated that symptoms of negative self-esteem and interpersonal problems overlapped between anxiety and depressive disorders. The researchers suggested that a better way to distinguish youth with AD-DD and AD-NDD would be to determine symptoms of negative mood, ineffectiveness, and anhedonia (the inability to feel pleasure) (p. 338).

Researchers Queen and Ehrenreich-May (2014) conducted a study similar to O'Neil et al. (2010) in 2014 with comparable results. They sought to examine the differences in demographic and clinical presentation in youth with anxiety and depression (ANX + DEP) and in youth with a single diagnosis of anxiety (ANX) (p. 162). Three hypotheses led the study: youth with comorbid anxiety and depression would display greater diagnostic severity and impairment as evidenced through self- and parent-report of heightened anxiety and depression symptoms; the comorbid group would display higher levels of negative affect (NA) and lower levels of positive affect (PA); and adolescents with ANX+DEP would report higher levels of emotional suppression (ES)

and inhibition only (p. 162). Negative affect referred to feelings of negative emotions and self-concept. Positive affect referred to the ability to experience positive emotions and to view life positively. Emotional suppression indicated the avoidance of emotions one did not know how to manage with no outward emotional display.

To complete the study, researchers recruited 76 adolescents between the ages of 12 and 18 from a larger clinical study that targeted intervention methods for adolescents with anxiety and/or depressive disorders. The most frequent diagnoses among the recruited adolescents were generalized anxiety disorder (GAD), social phobia (SP), and major depressive disorder (MDD). Of the participants, 58 percent were diagnosed with comorbid anxiety and depressive disorders and 42 percent were diagnosed with an anxiety disorder with no depressive disorder. Baseline data was gathered as a part of the larger study through the Anxiety Disorders Interview Schedule – child and parent reports (ADIS-IV-C/P), and several other questionnaires, interviews, and impressionistic measures.

Results of the study indicated no significant differences between the ANX+DEP and the ANX groups regarding age, gender, ethnicity, or family income. Interestingly, however, the researchers found that adolescents in the comorbid group were more likely to have parents that were divorced (p. 164). The results indicated several significant differences between the group with co-occurring anxiety and depressive disorders group and the pure anxiety disorder group. The ANX-DEP group was assigned a greater average emotional disorder value and reported greater functional impairment. This group also self-reported greater depressive symptoms and more severe social anxiety symptoms, but not other anxiety symptoms, as compared to the ANX only group (p. 165).

Regarding negative and positive affect, the ANX+DEP adolescents reported higher levels of NA and lower levels of PA. They also reported poorer emotional awareness, greater emotional suppression, and reluctance to express negative emotions. According to parent report, the ANX+DEP group also displayed greater inhibition of sadness, but not worry or anger as compared to the ANX group. Parents of the ANX+DEP group also reported more severe depressive, but not anxiety, symptoms. This may have been because the symptoms of depressive disorder were more recognizable (p. 166).

Comorbid Anxiety and Autism Spectrum Disorder (ASD)

In their article, Comorbid Autism Spectrum Disorder and Anxiety Disorders, researchers Zaloski and Storch (2018) stated that approximately 40% of children and adolescents diagnosed with Autism Spectrum Disorder (ASD) were also diagnosed with at least one anxiety disorder. The most common anxiety comorbidities in ASD included: /social phobia (SP), specific phobias, generalized anxiety disorder (GAD), separation anxiety disorder (SAD), and obsessive-compulsive disorder (OCD) (p. 31). Spiker, Lin, Van Dyke, and Wood (2012) suggested that children with ASD were prone to experience symptoms of anxiety perhaps associated with the syndrome such as challenges with sensory overload, difficulty with change, and the unpredictability of social situations (p. 316). These characteristics and challenges are further discussed below.

Researchers Bermudez, Sanchez, del Sol, and Sevilla conducted a study in 2015 in Spain relevant to children and adolescents around the world with autism spectrum disorder (ASD) and symptoms of various anxiety disorders. The study assessed and compared the levels of anxiety symptoms reported by children and adolescents with ASD and their parents. In the study, Bermudez et al. (2015) hypothesized that the results would follow the trend determined by

previous research where parents reported higher levels of anxiety symptoms than their children. Researchers also sought to determine which specific anxiety disorders were the most prevalent and how symptom reporting compared between children and parents (p. 2532).

The participants included a sample size of 38 children and adolescents between the ages of seven and 18 years and one parent for each participant. There were 36 boys and only two girls in the sample. The discrepancy in the number of male and female participants was rationalized through a discussion of wanting to utilize participants who did not also have a learning disability. It was stated that a high number of female children with ASD also had learning deficiencies. Participants and their parents were administered the Screen for Child Anxiety Related Disorders (SCARED) to evaluate anxiety symptoms (pp. 2535-2536).

The results indicated that parents reported higher levels of total anxiety than did their children across specific anxiety disorders: generalized anxiety disorder, separation anxiety, social phobia, and panic/somatic disorder. However, both children and parents reported at 50% above the cut-off for separation anxiety disorder. The correlation between child and parent reporting was significant in the areas of generalized anxiety disorder, separation anxiety, and social phobia. The researchers also found that participants in the higher age range reported greater levels of anxiety symptoms (pp. 2533-2534).

Expanding on the above research Chan, Yang, and Woods (2012) conducted a study to examine the link between various anxiety disorders and the degree of social functioning impairment in children with Autism Spectrum Disorder (ASD). Their aim was to determine if a greater severity in the anxiety disorder predicted lower social functioning and whether social phobia had a greater effect on social functioning as compared to other types of anxiety (pp. 237-238).

To conduct this study, researchers recruited 53 children aged seven to 11 years from a larger study for treatment for anxiety disorders in children who had ASD. Each child from the larger study met the Diagnostic and Statistical Manual of Mental Disorders (DSM-V) criteria for ASD and at least one anxiety disorder: separation anxiety disorder (SAD), generalized anxiety disorder (GAD), social phobia (SP), or obsessive-compulsive disorder (OCD). Researchers used the Autism Diagnostic Observation Schedule (ADOS), the Anxiety Disorders Interview Scale (ADIS), and the Social Skills Rating System (SSRS) to measure the severity levels of the different anxiety disorders and the impact on social functioning (pp. 238-239).

Chan et al. (2012) found only a significant correlation between social phobia and ASD. The researchers then conducted a comparison of social functioning in children with social phobia and those with other anxiety disorders. Results indicated significant difference between the two groups – the parents of children with SP reported much lower social functioning (p. 240). The higher levels of SP predicted lower assertive and responsible social skills (initiating conversation, joining groups, asking permission for something, etc.) (p. 241).

The researchers concluded that children with both ASD and SP may be aware of how social skills differ from their typically developing peers. This may make them more anxious in approaching others. Chang et al. (2012) suggested that children already aware of their social skills limitations may have a greater fear of judgement or embarrassment due to high levels of social phobia, in turn making it more difficult for them to initiate interactions with others, limiting the number of social interactions from which to learn and practice the social interactions they need. It creates a cycle of avoidance, increasing anxiety and limited social interaction (p. 242).

Comorbid Anxiety and Attention Deficit Hyperactivity Disorder

According to researchers Jarrett, Wolff, Davis, Cowart, and Ollendick (2016), anxiety is commonly comorbid in students diagnosed with Attention Deficit Hyperactivity Disorder (ADHD) in 25% of the general population and in 30-40% of children that have been clinically referred (p. 636). Sciberras, Lycett, Efron, Mensah, Gerner, and Hiscock (2014) suggested multiple reasons for the overlap between ADHD and anxiety. They proposed that anxiety could be a secondary development in children with ADHD due to multiple failure incidents; children and adolescents could present ADHD symptoms secondary to a primary anxiety disorder; ADHD and anxiety may arise simultaneously due to separate but similar etiological pathways; or that comorbidity could present a new, unclassified disorder (p. 805). To shed light on the prevalence and characteristics of anxiety and comorbid ADHD, three studies are discussed below.

Researchers Tsang, Kohn, Elfron, Clarke, Clark, Lamb, and Williams (2015) sought to address the frequency of anxiety found comorbid with Attention Deficit Hyperactivity Disorder (ADHD); to ascertain whether comorbid anxiety was associated with a specific subtype of ADHD; to determine the severity of the anxiety symptoms as reported by parents and participants; and to establish the association between the severity of anxiety and the severity of ADHD symptoms. The researchers hypothesized that: at least one of the tested anxiety disorders – separation anxiety (SAD), generalized anxiety (GAD), or obsessive-compulsive disorder (OCD) – would be present in at least 25% of the participants; the comorbid anxiety disorders would be most prevalent in ADHD – combined type; that the comorbid disorders would be distinguished by symptoms of severe anxiety; and that greater ADHD symptomology would correlate with the symptoms of severe anxiety (p. 19).

Baseline data was taken from a larger ACTION study in Sydney and Adelaide, Australia. There were 134 child and adolescent participants aged six to 17 years. Forty-two of the

participants had at least one comorbid anxiety disorder (29% of those participants had two comorbid disorders and 7% had all three comorbid anxiety disorders). Child and adolescent participants with a diagnosis of ADHD – hyperactive/impulsive were not included in the study due to a low base rate (pp. 19-20).

Based on the measurement tools and parent/participant reports, results indicated the following frequencies in diagnoses: 70% of participants had ADHD-combined type with a comorbid anxiety disorder, 28% had ADHD-inattentive type with comorbid anxiety disorder, 51% of participants had only ADHD-combined type, and 45% had only ADHD-inattentive type. These results indicated that the researchers were correct in assuming that at least one anxiety disorder would be present in ADHD and that the ADHD-combined type would have the highest frequency of a comorbid anxiety disorder (p. 21).

Regarding anxiety and ADHD symptomology, Tsang et al. (2015) found that parents reported more anxious-shyness in children with comorbid disorders, particularly in participants with either ADHD and SAD or GAD. However, self-reported levels were not significantly different. Clinician findings showed that these anxious-shy symptoms were least severe in participants who had ADHD- inattentive type (p. 21-22). The participants with GAD had greater levels of state anxiety, meaning they had higher severity in psychological and physiological reactions to adverse situations (p. 23). Confirming their hypotheses, the researchers found that participants with comorbid anxiety had more severe ADHD symptoms and anxiety symptoms, which were likely to “generate a poorer outlook” (p. 24).

Similarly, Jarret, Wolff, Davis, Cowart, and Ollendick (2016) sought to describe the effects symptoms of anxiety had on children who had been diagnosed with Attention Deficit Hyperactivity Disorder (ADHD). One hundred thirty-four participants, aged six to 17, who met

DSM-V criteria for a diagnosis of ADHD-combined type and/or a diagnosis of generalized anxiety (GAD), social phobia (SP), separation anxiety (SAD), or a specific phobia were chosen and broke into three groups. These groups included: ADHD only (31%), ADHD plus anxiety (ADHD+ANX; 23%), and anxiety only (ANX; 46%) (p. 638).

Jarret et al. (2016) concluded that the ADHD and ADHD + ANX groups did not differ significantly in ADHD-related symptom impairment; both groups showed significant attention problems. However, a significant difference between these two groups emerged regarding the physical symptoms of anxiety. The ADHD + ANX group reported a greater level of physical symptoms than the ADHD only group. Researchers also compared the ADHD + ANX with the ANX only group and found no evidence that the two groups systematically differed on any measurement (p. 641).

Results also indicated that the ADHD + ANX group showed the greatest impairment in working memory compared with the ADHD only group. However, the ADHD + ANX and ANX only groups did not differ, suggesting that anxiety alone may impair working memory. The researchers concluded that the ADHD + ANX was a “particularly impaired group of children in terms of cognitive functioning with additional deficits in working memory” (p. 642).

While Jarrett et al. (2016) examined the anxiety symptom severity and ADHD and the effects of neurocognitive functioning, Sciberras, Lycett, Efron, Mensah, Gerner, and Hiscock (2014) examined the broader association in the functioning of youth diagnosed with attention deficit hyperactivity disorder (ADHD) combined (ADHD-C) and inattentive type (ADHD-I) and either zero, one, or two or more comorbid anxiety disorders. To determine the overall functioning, researchers observed the subjects’ quality of life (QoL), peer relationships, behavior, daily functioning, and school attendance. It was hypothesized that participants with

ADHD and anxiety (one or more comorbidities) would have poorer functioning across all domains compared to those participants with only ADHD (p. 802).

Baseline data for the study was collected from two other studies being conducted across 21 public and private pediatric practices in Victoria, Australia. Participants were children aged five to 13 years, their parents, and teachers. Children were required to have met the DSM V criteria for either of the ADHD diagnoses. There were 329 family participants with data available from 298 of the teachers. The anxiety comorbidities examined included: social phobia (SP), generalized anxiety (GAD), separation anxiety (SAD), obsessive-compulsive disorder (OCD), post-traumatic stress disorder (PTSD), and panic disorder (PD). Participants were placed into three groups: 132 participants with no anxiety comorbidity, 95 participants with one anxiety comorbidity, and 143 participants with two or more anxiety comorbidities (p. 802).

Results of the study indicated that poorer overall functioning was not evident in children with ADHD alone or ADHD plus one anxiety comorbidity. However, parents of ADHD children and two or more anxiety comorbidities reported poorer quality of life, more difficulties with behavior, limited peer relationships, and more difficulty with daily functioning. Teachers of children with multiple anxiety comorbidities reported greater emotional problems (p. 804). These participants also tended to have worse school attendance than participants with ADHD only or ADHD and one anxiety comorbidity. Multiple anxiety comorbidities were associated with poorer functioning for children both for participants who had ADHD-C and those with ADHD-I (p. 805).

Trauma and Anxiety

Bullying

When discussing anxiety, we often think in terms of biological causes. However, anxiety can often evolve through traumatic experiences. One form of trauma experienced by children and adolescents is bullying. A study conducted by Isolan, Salum, Osowaski, Zottis, and Manfro (2013) examined the prevalence of bullying behaviors in a large sample of Brazilian students, along with information gathered about age and gender, to determine whether research conclusions from Australia, Europe, and the United States could be generalized. The researchers also investigated the relationship between bullying behaviors and anxiety symptomology. Isolan et al. (2013) hypothesized that the prevalence of bullying behaviors in the sample would be similar to studies from other countries. Researchers also believed that *victims* and *bully-victims*, but not *bullies*, would report more symptoms associated with anxiety (p. 642).

In this study, the term *victims* referred to those who experienced bullying. *Bullies* were those who committed bullying behaviors. Researchers referred to *bully-victims* when discussing participants who engaged in bullying as both victims and bullies.

The researchers recruited 2,353 Brazilian students from six schools located in the south of Brazil. Participants were aged nine to 18 years. Based on answers to initial questions regarding the frequency with which a participant was bullied or bullied another, researchers classified four groups of students: bullies, victims, bully-victims, and uninvolved. Of the child and adolescent participants, 23% reported frequent involvement in bullying behaviors. The Screen for Child Anxiety-Related Emotional Disorders (SCARED) was used to determine levels of anxiety based on self-report (p. 643).

Results indicated a greater proportion of boys than girls were involved in bullying and were more frequently bullies or bully-victims. No significant difference in gender was found in the frequent victim group. A greater number of children reported frequent involvement in

bullying behaviors than adolescents. Children reported higher levels of victimization and being bully-victims. Adolescents reported higher levels of being bullies (p. 643). Girls reported higher mean scores in all areas of measured anxiety (panic, generalized anxiety, separation anxiety, social phobia, and school phobia) than boys. When comparing groups, the victim and bully-victim groups reported higher mean scores on all aspects of the SCARED than the bullies and uninvolved groups. The researchers also reported no age or gender effects found between the intensity of bullying behaviors and SCARED scores. The findings of this study were reported to be consistent with previous research in other countries (p. 644).

Brown and Fite (2016) took an opposite, and interesting, approach to their study. They investigated the role anxiety played in the relationship between the experience of stressful life events and peer victimization, hypothesizing that those having encountered stressful life events developed anxiety symptoms and were more likely to face victimization. Stressful life events in this case referred to life-altering experiences that had an undesirable impact in a child's life that would require significant adjustments to manage stress and thrive. Examples of stressful life events included: emotional neglect, serious illness or injury, parental divorce, and death of a close friend or family member (p. 2616).

Initial participants were 294 (145 girls and 149 boys) second through fifth grade students between the ages of seven and 11 recruited from a public school in the Midwest. One year later, 177 students completed follow-up measures. No data was available regarding student ethnicity or socioeconomic status (p. 2617).

Using a variety of measures, Brown and Fite (2016) found that exposure to stressful life events was positively associated with high levels of anxiety symptoms. Results also indicated an association between initial levels of anxiety and subsequent peer victimization. Researchers

suggested that anxiety was likely associated with peer victimization because youth with higher levels of anxiety had poorer social skills and interacted less effectively with their peers. These results were consistent when controlled for depressive symptoms and prior levels of peer victimization (p. 2621).

In the age of technology, it is also important to include information related to cyber bullying as a form of trauma when discussing peer victimization. Diaz and Fite (2019) sought to determine the connection between cyber victimization (CV) and the effect on adolescent substance use, anxiety, and depression symptoms. The researchers also considered physical and relational forms of peer victimization (PV). The current study sought to expand on previous research that researched these effects in either elementary or high school students (p. 532).

The participants included 260 students in sixth (n=84), seventh (n=95), and eighth (n=81) grades. Participant gender was divided equally, with 53% male students. The ages ranged from 11 to 15 years. All participants were recruited from a middle school in a small, rural Midwestern community in the United States. Data was collected at the beginning of the year and again in the Spring semester of the 2016-2017 school year (p. 533).

Results indicated that substance abuse was the only factor uniquely and positively related to cyber victimization (p. 539). However, the researchers found that, contrary to what they believed, CV was not associated with internalizing symptoms (anxiety and depression symptoms). This result is also contrary to what many of the general public believe. Diaz and Fite (2019) found that girls reported more internalizing behaviors than boys. The analysis suggested that only physical victimization is positively correlated with anxiety. The researchers suggested the cause may be due to adolescent victims worrying about physical harm. Relational victimization was positively correlated with depressive symptoms (p. 540).

Abuse

Cogle, Timpano, Sachs-Ericsson, Keough, and Riccardi (2010) examined the history of childhood physical and sexual abuse in a large national sample that included how abuse affected lifetime symptoms of anxiety disorders. The researchers conducted several multivariate analyses controlling for comorbidity (particularly with depressive disorders), parental anxiety, childhood history of divorce or loss of parent, and demographic characteristics. The study also controlled for physical and sexual abuse to determine the unique relationship each had with particular anxiety disorders. Specific gender analyses were also completed to examine different relationships regarding anxiety and the psychopathology among men and women (p. 151).

The respondents of the National Comorbidity Survey-Replication were a representative sample of English-speaking adults from the continental United States. The interviews were conducted between February 2001 and April 2003. An extensive demographic section assessed gender, age, education, income, ethnicity/race, marital status, and other variables. The specific anxiety disorders included in the study were panic disorder (PD), generalized anxiety disorder (GAD), social phobia (SP), separation anxiety disorder (SAD), and post-traumatic stress disorder (PTSD) (p. 151).

Results indicated elevated rates of self-reported childhood sexual and physical abuse across all anxiety disorder diagnoses. The associations remained significant when researchers controlled for comorbid conditions. However, when controlled for each type of abuse, the researchers found more specific associations. When looking specifically at physical abuse, there were unique associations with PTSD and SP. Symptoms of PTSD, SAD, GAD, and PD were associated with sexual abuse. The data also indicated that those participants with numerous

anxiety disorders were more likely to have a history of abuse than those with one or no anxiety disorder (p. 153).

Additional analysis among the anxiety disorders indicated social phobia (SP) and post-traumatic stress disorder (PTSD) were equally associated with childhood physical abuse. Cases of childhood physical and sexual abuse were equally associated panic disorder (PD), separation anxiety disorder (SAD) and PTSD, with generalized anxiety disorder (GAD) strong for victims of childhood sexual abuse. An interesting note by the researchers indicated a strong relationship between parental anxiety and physical abuse (p. 154).

Accounting for gender, the study revealed important differences. Childhood sexual abuse was uniquely related to PTSD, SAD, and PD for women. However, childhood physical abuse in women was related only to SP and PTSD. For men, SAD was related to both physical and sexual abuse and only PTSD was associated with physical abuse. The researchers postulated that analysis of sexual abuse in men may be skewed due to low reported numbers (p. 154).

Immigration

Along with stressful life events and bullying, youth may also experience immigration-related traumas. In their study, Suarez-Morales and Lopez (2009) expanded on research examining whether pre-adolescent Hispanic youth who reported acculturative stress, and other forms of stress, were at increased risk for experiencing symptoms of anxiety. They expected that higher levels of acculturative stress, including perceived discrimination, would be related to higher levels of anxiety symptoms more so than other sources of stress. Other forms of stress were referred to as “daily hassles.” Acculturative stress was described as the “psychological adjustment and process of change that occurs when culturally distinct groups and individuals

come into contact with one another and the individuals of the minority begin to adopt the culture of the majority” (p. 336).

Participants for this study included 138 Hispanic children, 72 girls and 66 boys, aged nine to 12. The youth were recruited from fifth grade classrooms from five public schools in an urban area of Miami-Dade county. Researchers noted that this area of the United States has been home to many Cuban immigrant families for at least two decades and was starting to see a growing population of Mexican immigrant families. They stated that the length of time families had been in the United States may have played a role in stressors and symptoms reported by participants (p. 338).

Using a variety of measures to determine factors of acculturative stress, daily hassles, and levels of anxiety symptoms, researchers proved their hypothesis that a higher level of acculturative stress among Hispanic youth was related to more anxiety symptoms. The highest level of anxiety symptoms included concentration problems, physiological issues, and worrisome symptoms. The anxiety remained evident when variables were controlled for age, gender, socioeconomic status, and daily stress unrelated to acculturation (343).

Closer analysis showed perceived discrimination was predictive of higher levels of concentration problems (p. 343). Suarez-Morales and Lopez (2009) stated that this finding was reflected in previous research that related perceived discrimination to poor school performance. Results of the current study also indicated that immigration-related stress was associated with greater levels of worrisome thoughts. The researchers posited that this result could be related to immigrant youth’s preoccupation with language issues and the stress of leaving the country of origin (p. 344).

Vazsonyi, Trejos-Castillo, and Huang (2006) sought to expand previous research comparing immigrant populations and host cultures. Their study compared levels of adjustment and developmental problems (such as the associations among family process and measures of internalizing and externalizing behaviors) between the two groups. To generalize the data results researchers studied Switzerland because 22% of the included population are first generation immigrants (p. 802).

To comprehend the current research, three key terms should be identified. The term *family processes* refers to a family unit's closeness, ability to communicate and support each other, their level of conflict, and peer approval. *Internalizing behaviors* refers to anxiety symptoms, symptoms of depression, and low self-esteem. *Externalizing behaviors* refers to drug and alcohol use, and level of deviance (p. 802).

The study included 4,018 participants divided into three groups: native Swiss youth (2,620), second-generation immigrant youth (597), and first-generation immigrant youth (323). Participants were recruited from a medium sized city in the German speaking part of Switzerland. Youth were between the ages of 16 and 20 years (p.803).

Vazsonyi, et al. (2006) proposed three hypotheses. First, that native Swiss youth would report fewer internalizing and externalizing behaviors than immigrant youth. Second, based on previous research, that first-generation immigrant youth would report fewer externalizing behaviors than second generation immigrant youth. And finally, that more similarities than differences in developmental processes would be found across groups. Exploratory research was conducted to determine if levels of family processes would differ across groups (p. 802).

Results were consistent with researcher hypothesis regarding internalizing behaviors. Both immigrant groups reported significantly greater levels of internalizing symptoms than

youth from the host country, particularly in the areas of anxiety and depression. The researchers noted that first-generation immigrant youth reported higher scores in the area of anxiety than second-generation youth, concluding that the length of residence in a new place positively impacted mental health (p. 809).

In terms of developmental and family processes, researchers found no effect as a result of immigration. The internalizing anxiety symptoms across all three groups were consistently associated with levels of closeness, support, and conflict, particularly in second-generation immigrant youth when compared to native Swiss youth. Youth levels of depression were associated with support and conflict. The externalizing behaviors including drug and alcohol use, and deviance were affected by parental monitoring and parent-adolescent conflict across all three groups. Researchers suggested that low variance among groups on both internalizing and externalizing behaviors may imply that common familial features had a greater impact than cultural differences, though acknowledged the importance of cultural influence (p. 810).

Symptoms and Behaviors of Anxiety Disorders

Anxiety disorders share several common features including fear and anxiety, along with accompanying behavioral issues. “*Fear* is the emotional response to real or perceived imminent threat, whereas *anxiety* is anticipation of future threat” (DSM-V; p. 189). Anxiety disorders differ in the types of objects or situations that provoke the fear, anxiety, behaviors, and related cognitive ideation (DSM-V; p. 189).

The Mayo Clinic (2018), in their description of general anxiety disorders, lists several symptoms that may be observed in people with an anxiety disorder. Psychological and internal symptoms include feeling nervous, restless, tense; a sense of impending danger; worry or panic; trouble concentrating; and having the urge to avoid things that trigger the anxiety. Somatic or

external symptoms include increased heart rate, hyperventilation, sweating, trembling, feeling weak or tired, having trouble sleeping, and experiencing gastrointestinal (GI) problems.

Strauss, Frame, and Forehand (1987) conducted a relatively novel study for the time period to further examine the link between anxiety ratings in children and independent measures of psychopathology. The researchers gathered information through teacher, peer, and self-reports for 48 children. Youth participants included 24 males and 24 females in the second through fifth grade who attended two public schools in rural Georgia (p. 236).

Results from the teacher, peer, and self-reports suggested deficiencies in peer relations, depression, low self-esteem, difficulty with attention, poor school performance, and impairments in social behavior (p. 238). Strauss et al. (1987) found that anxious children were often socially rejected by their peers, disliked by many of their peers and were not preferred as playmates. Teacher reports indicated that anxious children were teased by peers, favored younger playmates, were disliked by classmates, and had poor peer relations compared to non-anxious peers. The researchers also observed high levels of depression in anxious youth, which would suggest the high occurrence of comorbid anxiety and depressive disorders (p. 238).

Since 1987, more research has been conducted on anxiety disorders, their symptomology, and associated behaviors. One such study, conducted by Motoca, Williams, and Silverman (2012) aimed at studying the relationship among youth anxiety symptoms, positive and negative peer interaction, and social skills. The researchers sought to evaluate the degree to which social skills mediated the relations between youth anxiety symptoms and peer interactions. The researchers also examined whether youth sex or age moderated the relationship among youth anxiety symptoms, peer interactions, and social skills. In their study, Motoca et al. (2012)

controlled for both social phobia and depressive disorders as youth suffering from both disorders inherently experienced social difficulties (p. 330).

The researchers posed three hypotheses. First, they believed anxiety symptoms negatively related to positive peer interaction and social skills. Secondly, researchers hypothesized that social skills mediated the associations between anxiety symptoms and positive and negative peer interactions. And lastly, it was hypothesized that social skills positively related to positive peer interactions and negatively related to negative peer interaction (p. 330).

Three hundred ninety-seven youth were administered a variety of measures to determine symptoms of anxiety, levels of peer interaction, and frequency of social skill use. According to youth self-report, as anxiety symptoms increased, positive peer interactions decreased and negative peer interactions increased. When anxiety symptoms increased, social skills decreased. Parent ratings were consistent with student reports except in the correlation between anxiety symptoms and positive peer interaction. According to parent reports this relationship was rated as nonsignificant (pp. 332-333). Regarding gender, Motoca et al. (2012) found the relations between youth anxiety symptoms, peer interactions, and social skills were similar for girls and boys (p. 333).

Researchers noticed several differences in results between older and younger participants. Older participants were viewed by parents as having fewer positive peer interactions. It was suggested that this may have been due to parents being “attuned to how their child’s anxiety may be related to positive peer interactions because older children are expected to be more autonomous in arranging peer interactions” (p. 334). Younger children with low social skills were viewed as having more frequent negative peer interactions. Researchers postulated that parents of children with low social skills may view their children as both physically and

emotionally weak and unlikely to defend themselves. The results of this study were cyclical - high levels of anxiety symptoms were related to low social skills. Low social skills were then related to few positive peer interactions and high levels of negative peer interaction. The results also indicated that, when controlled for social phobia and depressive disorders, youth with broadly defined anxiety symptoms also experienced difficulties with peer interaction (p. 335).

Another study of the social implications of anxiety disorders was that of Marsee, Weems, and Taylor (2008). They specifically looked at the associations among four aggression dimensions and anxiety disorder symptoms. As a part of their study, researchers also examined the potential role gender played in the relationship between aggression and anxiety (p. 157).

Several key terms and concepts are important to understand the current study. The researchers defined aggression and subtypes of aggression. They defined *aggression* as any behavior meant to hurt or harm others. *Overt aggression* meant to harm others by using physically or verbally aggressive behaviors such as hitting, kicking, or threatening. *Relational aggression* was defined as harm to others by damaging relationships and feelings of inclusion. Behaviors of relational aggression included gossiping, exclusion, rumors, or telling others not to be friends with a target child. Marsee et al. (2008) viewed two functions of aggression: *proactive aggression*, which is unprovoked and used for gain or dominance over others; and *reactive aggression*, which occurs as an angry response to provocation or threat (p. 155).

Using a sample of 83 youth (32 female and 51 male) six to 17 years of age, researchers found that the internalizing and externalizing behaviors were often related. Results showed that “reactively aggressive children often exhibit cognitive biases in social situations that lead them to misinterpret the intentions of their peers as hostile” (p. 165). Consistent with past research on reactive/proactive and overt/relational aggression, Marsee et al. (2008) found that the four

subtypes of aggression were significantly correlated. The highest correlation with anxiety symptoms by far was reactive relational aggression, or aggression in response to a perceived threat and meant to harm relationships and feelings of inclusion (p. 164). This conclusion supported past research that suggested that reactive aggression was more strongly associated with anxiety symptoms than proactive aggression. In support of their hypothesis, the researchers also found that in the context of high anxiety, boys demonstrated a higher level of reactive relational aggression than girls (p.165).

The results of this study suggested that relational aggression may seem less risky to children with anxiety than use of overt aggression. It also shed light on gender differences in aggression, highlighting that boys used social manipulation strategies that damaged friendships or status, when symptoms seemed to have no effect on girls' reported use of such strategies. Researchers recommend that intervention and treatment programs target co-occurring anxiety symptoms, incorporate gender-specific interventions that target the unique issues of boys and girls, and focus on social cognition to enhance the social skills of anxious and aggressive youth (p. 164).

While the bulk of the above-mentioned research included psychosocial impairment, it is important to note that youth with anxiety often exhibit physical symptoms (also known as somatic symptoms). Zolog, Jane-Ballabriga, Bonillo-Martin, Canals-Sans, Hernandez-Martinez, Romero-Acosta, and Domenech-Llaberia (2011) specifically studied this area. Their goals were: 1) to document the prevalence of recurrent somatic complaints (headaches, abdominal pain, leg pain, tiredness, and dizziness) over a two-week time period; 2) to examine the relationship between general anxiety, depression symptoms, and types of anxiety (generalized anxiety, separation anxiety, and social phobia) with frequent general somatization and specific somatic

complaints (headaches, abdominal pain, etc.); and 3) to investigate whether there was functional impairment in youth who frequently had somatic complaints compared to children with fewer complaints concerning school attendance and relationships with peers and at home (p. 193).

The researchers hypothesized that there would be significant positive associations between depression symptoms, general anxiety, and somatization. They also believed there would be significant positive connections to specific somatic complaints and somatization with generalized anxiety symptoms. Zolog et al. (2011) expected a significant connection between headaches, abdominal pain, leg pain, and separation anxiety symptoms. Finally, the researchers hypothesized significant functional impairment in youth who complained frequently of somatic issues compared with those who had fewer complaints (pp. 193-194).

Participants for this study were recruited from 13 schools (seven state schools and six state-subsidized private schools) from all five representative areas of Reus, in Catalonia, Spain. Youth were 1,450 fourth to sixth grade students; 690 males and 760 females. The children represented all three socioeconomic backgrounds (low, middle, and high). Participants were administered measures to determine demographic information, depressive and anxious symptoms, and presence and frequency of somatic symptoms (pp. 194-195).

Zolog et al. (2011) divided their results into two categories, those pertaining to somatic complaints and those pertaining to functional impairment. Headaches and abdominal pain were determined to be the most prevalent somatic complaints, with results comparable to a previous British and Ukrainian study. Few significant correlations were found between types of anxiety and specific somatic complaints or somatization. Researchers found that separation anxiety symptoms were associated with all somatic symptoms (headache, abdominal pain, leg pain, tiredness, dizziness, and somatization). An increase in the levels of separation anxiety symptoms

revealed an increased risk of suffering from recurrent somatic complaints. Significant positive associations between social phobia and somatization were also found. The current study did not find any significant relationships between generalized anxiety symptoms and somatization or specific somatic complaints, though the literature regarding this connection was mixed. Although it was not an objective of the study, the results indicated positive significant associations between depression, general anxiety symptoms, and all specific somatic complaints (p. 202).

Results also revealed significant functional impairment in those children with frequent somatic complaints compared to those with less frequent complaints. This finding was expressed in terms of restrictions in activities at school, home, and in relationships with peers. The most frequent form of impairment reported was in the form of school attendance. Six hundred forty-eight participants with frequent somatic complaints reported missing at least one day of school in the two weeks prior to assessment. Researchers posit that children who are absent from school do not receive adequate treatment because their problems are incorrectly seen as delinquency, so they are referred to social workers rather than to a psychologist/psychiatrist (p. 205).

School Performance of Children and Adolescents with Anxiety

Several studies, such as that of Mychailyszyn, Mendez, and Kendall (2007), have been conducted to determine how anxiety disorders impact academic performance. In their study, Mychailyszyn et al. (2007) examined three specific anxiety disorders - generalized anxiety disorder (GAD), separation anxiety disorder (SAD), and social phobia (SP), along with their comorbidities, to determine specific effects on academic and social performance.

The study participants included 227 youth and many of their parents as participants. The youth were seven to 14 years old. One hundred sixty of the participants were previously diagnosed with an anxiety disorder and 67 participants were community volunteers. After initial

assessment, 14 of the 67 volunteers were also diagnosed with an anxiety disorder. The researchers used rating scales and interviews from youth, their parents, and teachers to determine anxiety levels and the presence of any comorbid disabilities, symptoms of anxiety, school performance, and social functioning (p. 109-110).

Overall, youth with no diagnosis performed at higher levels across all categories of academic and social performance. In contrast, increasing levels of anxiety resulted in higher levels of impairment. Most pronounced were the results for students diagnosed with social phobia (SP). These students were rated lower on most functionality scales (p. 116).

Another study aiming to better understand the connections between anxiety (and depression) and the effect on academic performance was conducted by Khesht-Masjedi, Shokrgozar, Abdollahi, Habibi, Asghari, Ofoghi, and Pazhooman (2019). The researchers defined anxiety as the feelings of “nervousness, apprehension, fear, or worry...that interferes with the sufferer’s ability to sleep or otherwise function” (p. 800). It was stated that those with anxiety could be in a state of panic and that these feelings could influence academic performance. Depression included feelings of sadness, weakness, disappointment, frustration, helplessness, and hopelessness. The researchers stated that many anxious and depressed people “may be struggling to perform well in academic life because they do not have the courage in what they are doing [and are not] reaching the standard of performance set for them” (p. 800).

The researchers found that female participants had greater levels of anxiety than male participants. Participants over the age of 17 showed the highest average scores of depression. Symptoms of anxiety/depression and academic achievement were negatively correlated. Those with greater levels of anxiety/depression had lower academic achievement. The researchers also discovered that students with symptoms of anxiety and depression were predisposed to focusing

their attention on interfering, irrelevant thoughts. They had little capacity for sustained attention on cognitive tasks, which in turn could lead to academic failure (p. 803).

Jarrett, Black, Rapport, Grills-Taquechel, and Ollendick (2015) expanded anxiety and school performance research by specifically examining the developmental differences in children with generalized anxiety disorder (GAD) using younger (ages seven to nine) and older children (ages 10 to 13) participants. They compared the two groups across demographics, child-reported anxiety and depression symptoms, parent and teacher report of symptoms and impairment, and degree of comorbid disorders. School and global impairments were evaluated as reported by participants, their parents, and clinicians.

Study participants included 60 youth aged seven to 13 and their parent(s) or primary caregiver(s). There were 39 male and 21 female youth. Participants were referred by local schools, family physicians, pediatricians, and mental health professionals. Of the participants, 12 had comorbid depressive disorder, 27 with comorbid anxiety disorder, and 27 with comorbid ADHD. Jarrett et al. (2015) pointed out that while anxiety symptoms were the reason children were referred to the study, parents and caregivers most often indicated “academic problems” as their reason for referral (p. 1001).

Results of the study indicated no significant age-based differences on measures of child and parent-reported GAD severity, composite severity, number of symptoms reported, and overall global impairment suggesting similarly severe symptoms in younger and older children from all viewpoints (p. 999). However, results indicated some differences. Parents and younger children were more likely to report anxiety symptoms related to harm avoidance and worry about perfectionism, while older children and their parents reported greater school-related impairment and learning problems. Researchers suggested that this finding may be due to more awareness on

the part of older children, alternatively, it may have been a combination of increased cognitive development, greater awareness of anxiety symptoms, and the increased school demands placed on older children (p. 1000).

Common impairments endorsed by older children and their parents included trouble paying attention and a tendency to become easily upset. Children with these issues did not differ in their diagnoses of ADHD or learning difficulties, leading researchers to believe that these symptoms could be related to greater school-related worry and anxiety. The older group of participants with anxiety also showed overall lower IQ scores compared with the younger participants, particularly in the areas of perceptual reasoning and working memory. Jarrett et al. (2015) suggested that these impairments were related to anxiety surrounding academic and/or performance tasks (p. 1000). Though this study looked specifically at GAD, it may be interesting to determine if results could be generalized to other anxiety disorders.

Treatment and Prevention Strategies

With the plethora of information on anxiety and its effects on academic performance, this section explores outcomes for children when anxiety is reduced. A longitudinal study conducted by Jefferey Wood (2006) sought to determine the impact of reduced anxiety on children's academic performance and social functioning. It was the researcher's aim to determine the effects of reduced anxiety over time, considering the participant's age and gender.

Child participants met criteria for at least one of the following anxiety disorders including 27 with separation anxiety disorder (SAD), 11 with generalized anxiety disorder (GAD), and 20 with social phobia (SP). Participant ages ranged from six to 13 years. There were 24 male and 16 female participants. Parent participants included 35 mothers and five fathers. The relatively small sample size included 38 Caucasian students, 5 Latino/Latina students, 1 African American

student, 1 student of Asian descent, and 13 students who indicated a multi-racial background (p. 346).

A variety of assessment tools measured anxiety symptoms, severity of anxiety, level of perceived social functioning, and level of perceived school performance. The scales were completed by parents, children, and independent evaluators pre-, mid-, and post-intervention. Wood (2006) concluded through assessment and data analysis that reduced anxiety leads to improved academic and social functioning over time no matter age or gender (p. 347). Specifically, Wood (2006) predicted that a reduction in anxiety symptoms would lead to increased attention and engagement in academic activities (p. 348).

Using the research-based knowledge that managing anxiety increases academic and social functioning, a variety of strategies can be utilized in school settings to help students with anxiety disorders. Strategies for the treatment and reduction of anxiety symptoms are discussed below.

CBT Programs Provided Through a Trained School Professional

Cognitive-behavioral therapy (CBT) is a common strategy used to reduce anxiety in children and adults. According to the American Psychiatric Association (APA) (2017), CBT is “a form of psychological treatment that has been demonstrated to be effective for a range of problems including depression, anxiety disorders...and severe mental illness” and leads to significant improvement in functioning and quality of life. Commonly, CBT is delivered by a trained psychologist in a clinical setting. The core tenets of CBT are that psychological problems are based on unhelpful and unhealthy ways of thinking, on learned patterns of behavior, and that people suffering from psychological problems can learn better coping strategies and relieving the symptoms. Treatment between a psychologist and patient includes changing thinking patterns by

learning to recognize distorted thinking, gaining an understanding of the behavior and others' motivations, learning problem-solving coping skills, and developing confidence in one's own abilities. Treatment also includes changing behavioral patterns by facing fears instead of avoiding them, using role-play to practice interactions, and learning calming and relaxing strategies.

While traditionally cognitive-behavioral therapy is delivered in a clinical setting, it is becoming increasingly apparent that for children, the school setting is a place of great importance in recognizing and preventing mental health issues, including anxiety disorders. One study, conducted by Keogh, Bond, and Flaxman (2005), examined the effects of a CBT-based program for test anxiety. Researchers found that adolescents who received intervention in the school setting scored higher on standardized tests than children in the control group (p. 352).

Collins, Woolfson, and Durkin (2014) examined the effects of a universal, CBT-based mental health intervention on levels of anxiety in children aged nine to 10 years along with the coping skills used. They also compared the outcomes for children based on whether the program was delivered by a teacher or a school psychologist (p. 88). They found that children in the intervention group who received the CBT-based treatment reported significantly lower levels of anxiety than those in the control group. For the intervention group, researchers noticed decreased "avoidance" coping skills and increased "problem-solving" coping skills. Comparing teacher-led and school psychologist-led groups, Collins et al. (2014), found a difference only in a decrease of avoidance coping skills in students in the teacher-led group. They concluded that this finding meant that teachers could provide quality programming with the proper training (p. 95).

Based on studies such as these, several programs have been designed to be delivered in the school setting, either as whole class prevention curriculum or as small group intervention.

Discussed below are two programs with an abundance of research-supported success in aiding in the prevention and reduction of anxiety symptoms.

FRIENDS Resilience Program

According to its website, the FRIENDS Resilience programs “are Australian developed, cognitive behavior therapy (CBT) based programs, endorsed by the World Health Organization as best practice for the prevention and treatment of anxiety and depression, promoting resilience in families, schools, and communities.” There are four programs – Fun FRIENDS (for young children), FRIENDS for Life (for elementary-aged children), My FRIENDS Youth (for early teens), and Adult Resilience (for those transitioning from adolescence into adulthood; also used for parents of children participating in the aforementioned programs). FRIENDS is an acronym for the concepts: F – feelings; R – relax; I – I can try!; E – encourage; N – nurture; D – don’t forget-be brave!; and S – stay happy.

Worldwide studies have been conducted to determine the effectiveness of the FRIENDS program for children and adolescents with anxiety disorders. One study was conducted by Pereira, Marques, Russo, Barros, and Barrett (2014), who explained that the FRIENDS for Life program was a group-based intervention that “emphasizes peer learning” and stated that the program had a “number of advantages, including facilitating and normalizing anxiety experiences, positive modeling, social validation, the establishment of new friendships, and the reinforcement of social support” (p. 648). They stated that including family intervention promoted reduction of family risk factors for anxiety such as parental overprotection, modeling anxious behaviors, and reinforcement of children’s avoidance behaviors. Pereira et al. (2014) described schools as an important context for prevention due to daily contact with children,

frequent interaction with families, and their ability to make treatment possible for all children (p. 648).

Pereira et al. (2014) evaluated the effectiveness of FRIENDS for Life program within a Portuguese context. Researchers hypothesized that children who participated in the intervention group, as opposed to the waitlist control group, would show significant improvement in anxiety symptoms. Through a screening process using a convenience sample of 8- to 12-year-old students from two schools near Lisbon, the researchers recruited 38 highly anxious children and their mothers as participants in the study. Facilitators, supervised weekly at each school, were trained to implement the program and given the Group Facilitator's Guide. Children participating in the intervention were given the Book of Activities and homework to practice skills learned during sessions (p. 652).

Facilitators reported high student involvement in the school sessions. The children reported that during sessions they had a lot of fun, learned a lot, and felt what they learned was important. Declining involvement was noted for homework completion starting at the intervention midpoint (p. 652). Over 50% of parents involved attended at least one session. However, only 30% of parents attended both sessions, indicating professional or family obligations as reasons for their absence. (p. 652).

Results indicated a significant, positive impact on post-intervention outcomes, suggesting program effectiveness that reduced anxiety symptoms. However, researchers noted that a substantial number of child participants (16) continued to show anxiety symptoms within clinical thresholds suggesting the need for more intense intervention for some children with high anxiety levels (p. 654). Parent reports indicated low levels of anxiety for the children at pre- and post-intervention, which indicated that the FRIENDS program had no significant impact. This

discrepancy between child and mother informants was relatively common. Children often report higher levels of internalized anxiety symptoms than their parents (p. 654). Parental reports and low parental involvement in sessions suggested that some mothers did not recognize signs of anxiety in their child. Overall, study results supported the effectiveness of the FRIENDS for Life program.

Researchers Essau, Conradt, Sasagawa, and Ollendick (2012) delved deeper into the effectiveness of the FRIENDS for Life program. The purpose of their study was to compare anxiety symptoms between an intervention group and a control group at both six- and twelve-month follow-ups; to investigate the effects of the program on specific correlates of anxiety (social and adaptive functioning, coping styles, social skills, and perfectionism); to consider the moderating roles of age and gender; and to examine mediating factors that predict the success of the FRIENDS program (p. 453).

Essau et al. (2012), believed that children who participated in the intervention group would show more significant decreases in both anxiety and depression symptoms than children in the control group. They hypothesized that children in the intervention group would report lower levels of perfectionism and higher levels of social skills and social/adaptive functioning. It was hypothesized the children in the intervention group would also increase their coping skills in assistance-seeking and cognitive-behavioral problem-solving more so than the children in the control group. The researchers sought to prove that the program would benefit girls more than boys and younger children more than older children. Finally, they supposed that parent involvement and satisfaction would predict greater outcomes for children (p. 454-455).

Researchers recruited 638 children aged 9 to 12 years from 14 different schools in North Rhine-Westphalia, Germany. Each school was randomly assigned as either an intervention or

control school. Students at the intervention schools participated in the FRIENDS program (302 students total). Students at control schools were contacted at regular intervals to monitor school progress (336 students total). Parents of children in the intervention group were invited to join four evening parent sessions (p. 454). Facilitators of the FRIENDS intervention were trained at a three-day workshop and required to have at least two years of experience working with children with anxiety and depressive disorders (p. 455). Groups of around ten children received the FRIENDS program from two facilitators during an after-school care program (p. 456). The intervention and control groups did not greatly differ in the majority of preintervention measures (p. 458).

To support the overall effectiveness of the FRIENDS program, researchers found that the intervention group had significantly higher scores on school performance measures than the control group at 6- and 12-month follow ups (p. 459). While there were no significant differences found in anxiety symptoms between groups at post-intervention, there was a significant decrease in anxiety found in the intervention group at the 12-month follow-up session. The result suggested that children need to practice skills learned during intervention to show significantly decreased anxiety symptoms. Children in the intervention group also showed significant decreases in depressive symptoms at both the 6- and 12-month follow-ups, which supported the research hypothesis (p. 461).

A significant difference was also found in levels of perfectionism, coping ability, and cognitive avoidance between the two groups. At the 6- and 12-month follow-ups the intervention group had decreased their scores in perfectionism and use of the cognitive avoidance coping strategy (p. 459). However, there was no significant improvement in the use of proactive coping strategies at the 6- or 12-month follow up (p. 461). The lower perfectionism and avoidant coping

strategies were predictive of treatment gains. Essau et al. (2012), noted that a certain level of willingness to participate in the program intervention was also desirable when talking about treatment gains (p. 461).

Regarding gender, no significant difference was found between male and female participants as they both benefited from the program. However, age was found as a moderating factor, where younger intervention participants showed improvement earlier than older participants. The researchers suggested these results may reflect a need for older children to practice in real-life settings to overcome more cognitive or experiential factors than younger children (p. 461).

Iizuka, Barrett, Gillies, Cook, and Marinovic (2015) took a novel approach to examining the FRIENDS program. The researchers examined effective methods to support teachers who used evidence-based methods to promote students' social and emotional well-being and how teachers affected the students' emotional outcomes (pp. 5-6).

All sixth and seventh grade students from a particular school in a low socioeconomic area in Brisbane, Australia with a partnership between the school and research institution, participated in the intervention. Of the 160 students, data was gathered on 69 students for this study. Twenty-three teachers participated in a full-day training session and completed pre- and post-intervention surveys on the participating students (p. 6). During the initial three sessions of intervention implementation, teachers were visited by accredited FRIENDS coaches. The coaches provided modeling demonstrations for teachers to observe and then reflected on how to implement strategies into their own routines (p. 7).

Based on initial screening data results, students were divided into two groups: the 'not at risk' and the 'at risk' groups (p. 9). Researchers found a higher percentage of participating

students showed results in the ‘at risk’ group than expected, indicating the effects of living in disadvantaged areas (p. 12). Results indicated those students who were in the ‘at risk’ group showed significantly decreased in anxiety levels, while student in the ‘not at risk’ group showed no significant changes. The areas with the most significant improvement for the ‘at risk’ group were separation anxiety, obsessive compulsive disorder, and physical anxiety (p. 9). These results support the positive impact of the FRIENDS program (p. 12).

Findings of the study indicated that both teacher and student participants found the program to be useful, effective, and easily implemented within the classroom routine. Researchers found that the coaching and learning by example model of the FRIENDS program met the teachers’ growing need for professional development. The program is more comprehensive than a ‘one-time event’ typically used to support teachers in meeting the social and emotional needs of their students. The FRIENDS model improved both student well-being and teacher resilience. The researchers stated that this type of training and program has the potential to improve the classroom environment and increase learning (p. 13).

Cool Kids Anxiety Program

The Cool Kids Anxiety Program was developed at Macquarie University in Australia in 1993. According to their website, the program is rooted in cognitive-behavioral concepts with a focus on learning about feelings of anxiety, learning to think realistically, facing fear using stepladders, learning coping skills, and parenting an anxious child. The program is delivered through ten weekly sessions and is meant for children aged 7 to 17 years. The California Evidence-based Clearinghouse for Child Welfare website states there are several versions of the Cool Kids program including one for adolescents (the Chilled program), one for children with comorbid autism, one for adolescents with comorbid depression, for delivery in schools, and

outreach (delivered by parents in the home setting). Cool Kids was originally delivered in-person via telephone and later CD-Rom to reach students in remote locations. Beginning in 2016, the program was available online. An updated second edition was released in kit form (facilitator and child workbooks) as of 2020.

Program recommendations include delivery by someone with at least a four-year degree in health or education, such as a psychologist, counselor, or educator. Developers suggest that additional training in cognitive-behavioral therapy is necessary and provide online resources to obtain such training. A facilitator must also obtain training and accreditation in order to run the Cool Kids program. This can be done through a face-to-face workshop at Macquarie University or through their eTraining course (Cool Kids website, 2020).

McLoone, Hudson, and Rapee (2006), stated that the Cool Kids program is administered in small groups of students determined as at-risk of developing or currently developing symptoms of anxiety. Due to the nature of selection, a screening process is necessary to determine which children will benefit most from the program. The program is provided through ten weekly sessions with two booster sessions available. Two parent-counselor meetings are held, one at the beginning and one at mid-point, to increase parental involvement (p. 230). According to Herzig-Anderson, Colognori, Fox, Stewart, and Warner (2012), the Cool Kids Program: School Version focuses on psychoeducation, cognitive restructuring, and graduated exposure to anxiety-provoking situations, with lessons on assertiveness, coping with bullying, and social skills (p. 657).

Arendt, Thastum, and Hougaard (2016), conducted a study to determine the efficacy of the Cool Kids program for youth with anxiety disorders. They also explored how the specific effects of the program impacted different anxiety disorders (p. 110). For their study, Arendt et al.

(2016) recruited 109 youth (62 female and 47 male) aged seven to 16 years in Aarhus, Denmark. Youth were divided into age groups of seven to nine years old, ten to 12 years old, and 13 to 16 years old. Within age groups, youth were divided randomly into a treatment or wait-list control condition group (p. 110).

Following the ten two-hour weekly sessions, analysis indicated a significant decrease in anxiety for youth in the intervention program. A total of 37 youth were freed from their primary anxiety diagnosis and 27 youth were freed from all anxiety diagnoses post-treatment (p. 118). Youth in the intervention groups also improved scores in the areas of depression, life interference, and self-concept more so than youth in the wait-list groups. Results indicated even more improvement for the intervention groups at three-month follow-up (p. 118). However, the researchers found that youth with social phobia (SP) improved significantly less than youth with other primary anxiety diagnoses (p. 119).

In discussing the outcomes of their research, Arendt et al. (2016) stated that they received high satisfaction ratings from youth and parents as evidenced by high attendance and low drop-out rates (p. 118). The researchers stated that the short, group format made Cool Kids a relatively cost-effective intervention tool. However, parents of youth in the intervention groups reported that the program run time was too short or that there was too little time between sessions to finish homework. Increased time would most likely diminish cost-effectiveness but may increase treatment outcomes for some families (p. 119).

When conducting their own research on the efficacy of the Cool Kids program, Misfud and Rapee (2005) specifically looked at a population of youth from disadvantaged socioeconomic backgrounds. They recruited 105 youth aged nine and ten from nine schools in a lower socioeconomic area of Sydney, Australia. Each school was randomly designated either as

an intervention school or a waitlist school. Children in the intervention group received eight hour-long weekly sessions. The program was delivered in groups of eight to ten children by trained school counselors and community mental health workers (p. 998).

The researchers found that the children in the intervention group showed a greater decrease in symptoms of anxiety, thoughts of threat, and feelings of personal failure than children in the waitlist group. These results were maintained and somewhat improved at four-month follow-up (p. 1001).

Though not much work has been done with the Cool Kids programs in the United States, its effectiveness has been proven around the world. Cool Kids could be a useful tool to integrate into the school setting as a small-group intervention with students who have been diagnosed with an anxiety disorder.

Mindfulness

While Cognitive Behavioral Therapy (CBT) programs aim to restructure thought and behavior to alleviate symptoms of anxiety, a mindfulness practice teaches children and adolescents to focus their attention on the present moment in a deliberate and non-judgmental way, therefore changing thought processes. Mindfulness is the concept of calmly acknowledging and accepting your emotions, feelings, and experiences. While mindfulness practices encompass a variety of activities, many school-based programs focus on mindful yoga, relaxation and guided breathing, and meditation.

One effective curriculum-based mindfulness program is the MindUP program. According to their website, MindUP is the signature program of the Goldie Hawn Foundation, “a not-for-profit organization created in response to the global epidemic of childhood aggression, anxiety, depression, and suicide.” It is an evidence-based, school-wide social-emotional learning tool that

can be used to reduce aggression and increase pro-social behaviors. It is also reported that children who participated in the MindUP program improved academic performance, especially in math and language arts. The MindUP program is primarily designed for children up to the age of 14 (MindUp for Life, 2020).

In their research using the MindUP program, Schonert-Reickl, Oberle, Lawlor, Abbott, Thomson, Oberlander, and Diamond (2015) suggested that improvement in executive function and self-regulation could predict children's behavior, school achievement, social-emotional competence, and could be supported by practicing mindfulness. *Executive function* refers to "cognitive control abilities depending on the prefrontal cortex that organize, sequence, and regulate behavior" (p. 53). The study examined how the MindUP program affected children's cognitive control abilities, stress-regulation, well-being, and pro-social behaviors (p. 53).

The MindUP program is based on research in the fields of neuroscience, contemplative science, social-emotional learning, and positive psychology. The program used in the study consisted of 12 lessons that built on previously learned skills. Lessons began focused on sense-based experiences such as mindful smelling and progressed to cognitive experiences such as taking someone else's perspective. Lessons also included instruction in practicing gratitude and doing kind things for others (p. 53).

The researchers compared two groups of fourth and fifth grade children from four different schools in a suburb of a large western Canadian city. One classroom per school was chosen to participate in the study. The 100 children recruited were divided equally and administered either the MindUP intervention or a "business as usual" (BAU) social responsibility program. Schonert-Reickl et al. (2015) hypothesized that the group of children participating in the MindUP program would show more positive changes than children who participated in the

BAU program on measures of social-emotional competence, hypothalamic–pituitary–adrenocortical (HPA) regulation, and increased math grades. However, the researchers also hypothesized that there would be no difference between groups on measures of social responsibility (p. 54). The four classroom teachers were asked to implement the program, complete surveys, document any changes to lessons, and keep a daily diary of implementation for both the BAU and MindUP programs (p. 55).

Using several tools for measuring data, Schonert-Reichl, et al. (2015) found significant improvements in the executive functioning, self-reported well-being, and self- and peer-reported prosocial behavior for students who participated in the MindUP program. The students also tended to show improved math performance. In response to measures of Executive Functioning, children who participated in the MindUP program outperformed children who participated in the BAU program on the most difficult tasks, which required response inhibition, working memory, and cognitive flexibility. The researchers suggested that the three times per day mindful practices of mindful breathing and focus may have led to the increased inhibitory control, subsequently leading to improved emotional control in MindUP children (p. 61).

Other in-school, mindfulness-based intervention programs have been examined. Gouda, Luong, Schmidt, and Bauer (2016), examined a mindfulness-based stress reduction (MBSR) program. Another, related study, conducted by Kanei Lam (2016), examined a mindfulness-based cognitive therapy program for children (MBCT-C). Both studies used a waitlist-control group and an intervention group. The interventions were implemented in schools, but by an outside “expert” in the area of mindfulness interventions. The aim of both studies was to determine if the programs decreased levels of internalizing symptoms, such as anxiety and

depression, in child participants. The MBSR research conducted by Gouda et al. (2016) also sought to determine effects on teachers who participated separately from students in the program.

Results of both studies showed decreased levels of internalizing anxiety problems in participating children. Specifically, participants reported improved feelings of anxiety and stress, emotion regulation, interpersonal relationships, and school-related self-efficacy. The MBSR program delivered to teachers showed improvements in the areas of self-reported mindfulness and interpersonal relationships (Gouda et al., 2016)(Lam, 2016).

Yoga has also been shown to positively impact internalized problems such as anxiety and stress. The Anbarasu and Chandramohan (2016) study aimed to determine the effectiveness of yoga in the management of anxiety using students aged 15 to 18 years (p. 1207). The researchers hypothesized that the yoga intervention would significantly decrease symptoms of anxiety and depression for participants and that boys who participated in the intervention would manage symptoms better than female participants (p. 1208).

Forty students were recruited and divided into two groups with an equal number of boys and girls: the control group and the experimental (yoga) group. The experimental group was exposed to various yoga exercises twice per day on school premises for 30 minutes per day in the morning and in the afternoon. The control group did not receive any yoga exposure (p. 1208). Results from the study indicated that the students who participated in the experimental group had significantly decreased levels of anxiety compared to the control group. There was no difference indicated between the male and female ability to control anxiety when participating in yogic lessons (p. 1210). Researchers reported that even at the three-month follow-up period, those who participated in the experimental group continued to show no signs of anxiety, indicating the

success of yoga as a tool in managing anxiety symptoms and in sustaining psychological wellbeing (p. 1210).

Research conducted by Stapp and Lambert (2020) also examined the impact of mindfulness-based yoga intervention on perceived anxiety and stress. They specifically looked at fifth grade students in three mathematics classes from an intermediate school in northwest Mississippi. The researchers also sought to determine the classroom teachers' perceptions of the yoga intervention (p. 474). All students participated in the intervention, but only those who provided parental consent and assent for themselves were asked to complete pre- and post-intervention questionnaires. Fifty-eight students from the three classrooms participated in answering the questionnaires. A student teacher implemented the yoga exercises, beginning each class period with breathing exercises and then completing simple yoga stretches to draw students' attention to the moment and relax before the class began. Guided meditation was also utilized throughout the three-week intervention period (p. 474).

Overall, results indicated that male participants reported a significant decrease in both anxiety and stress levels, while female participants reported an increase in anxiety levels and sustained their levels of stress (p. 475). However, when examining results based on ability level, the researchers found that students in the first class, remedial students, and those who received special education services, showed decreased levels of perceived anxiety and decreased stress levels. Students in the second class – students of average ability – reported an increase in perceived anxiety and decreased perceived stress levels. Advanced students in the third class also reported increased perceived anxiety and decreased perceived stress levels (p. 476).

At the end of the intervention period, the classroom teacher observed that the first class showed fewer signs of anxiety, corroborating student reports. However, she also noticed

decreased anxiety and stress levels across all three classes, particularly on “test days.” The teacher noted that the positive effects of the mindfulness-based yoga were manifested in more positive classroom transitions (p. 478). Strapp and Lambert (2020) suggested that incorporating mindfulness-based yoga into the daily class routine may help promote “a positive classroom environment that enables effective instruction and learning to transpire” (p. 479).

While several studies have been conducted highlighting the success of yoga intervention at an elementary level, one study, conducted by Khalsa, Hickey-Schultz, Cohen, Steiner, and Cope (2012) determined the acceptability and feasibility of implementing a yoga curriculum at the secondary level within a physical education setting. Seven P.E. classes of 11th and 12th grade students in rural Massachusetts were enrolled in the study with the option to opt out of completing pre- and post- intervention measures. Participants were randomly divided into either the intervention (yoga) group or a control (regular physical education curriculum) group. The intervention group participated in two to three yoga session per week for 11 weeks during 30 to 40-minute class periods. The yoga curriculum used was an adaptation of the Yoga Ed program for secondary schools. Sessions involved learning simple yoga postures, breathing exercises, visualization, and fun yet relaxing games with low physical exertion (p. 182).

Results indicated significant improvements in the yoga intervention group with regards to anger control, resilience, and fatigue/inertia as compared to the control group. The control group overall showed either no improvement or a decline on most measures. Secondary analyses indicated a significant decrease in the tension/anxiety subscale on one measurement tool for students participating in the yoga group (p. 187). These improvements were suggested to be the result of increased emotional intelligence and coping skills through yoga practice teachings. The

fatigue/inertia improvements may have been due to participant reported improvements in ability to relax, leading to improved sleep (p. 188).

Guided breathing and relaxation techniques similar to yoga have also been shown to positively impact anxiety symptoms. Larson, El Ramahi, Conn, Estes, and Ghibellini (2010) studied the effects of relaxed breathing and guided imagery specifically related to test anxiety and high stakes testing (p. 3). They hypothesized that post-intervention data would show significantly decreased anxiety levels for intervention participants, no decrease in anxiety levels for controls, with significant differences between the groups (p. 6). The sample was comprised of third grade students, aged 8 to 10 years, enrolled in two different public elementary schools from separate school districts in the Midwest (p. 8). One school participated as the experimental group and the other as the control group.

One researcher conducted the relaxation technique training within the school setting to experimental group students. Sessions were held twice per week for five weeks (p. 8). The Elevator Breathing technique was used for five minutes per session. This technique used deep breathing, or “belly breathing” and incorporated visualization for children. Students in the experimental group were also taught guided relaxation of the muscles – tensing different muscle groups then releasing them – along with deep breathing. The guided relaxation portion of each session lasted for 8 to 10 minutes (p. 9).

Larson, et al. (2010) determined that students who participated in the breathing and guided relaxation sessions showed significantly less test anxiety post-intervention. However, students who participated in the control group showed no significant decreases in test anxiety, as hypothesized (p. 11). The researchers cautioned that the experimental school was in a district that

may have pressured students to perform well on formal testing and suggested that that results should be interpreted accordingly.

Along with the aforementioned mindfulness strategies, school-based meditation has also proven effective in decreasing levels of anxiety in youth and adolescents. Britton, Lepp, Niles, Rocha, Fisher, and Gold (2014), explored the effects of classroom-based, teacher-led meditation as the sole component of training to determine the true benefits of mindfulness meditation. Researchers stated that their design differed from other studies, as those studies often included social/emotional learning, nutritional information, and health and safety teaching (p. 265).

One hundred-one participants were recruited from two schools near Providence, Rhode Island. Students were randomized into two sections of either an Asian History course with daily mindfulness meditation (experimental group) or an African History course with similar experiential activity (the active control group) (p. 268). The experimental group participated in a six-week intervention where they were taught breath awareness, awareness of thoughts, feelings and sensations, and how to do “body sweeps” at the beginning of their history classes. All intervention instructions were delivered by two history teachers. At the end of each session, recorded their thoughts about the meditation for the day (p. 268). The active control groups were taught by the same teachers and constructed a replica of a Pharaoh’s Tomb as their activity (p. 269).

Britton, et al. (2014) found that the meditation intervention was both feasible within the school setting and acceptable to students, teachers, and administration. Students reported enjoying their meditative practices and teachers reported requests for meditation in other classes. An improvement in overall school culture was also reported. The researchers also found mixed results between the experimental and active control groups. While those participating in the

meditation group showed improvements over the active control group, they were not significant. Both groups produced equally large decreases in the clinical symptoms of internalizing, externalizing, and attention problems (p. 271). The researchers suggested that these results could have been due to the students' experience and the benefits of novel activities in the classroom. Findings also may have been from exposure to more contemplative teachers, as the teachers who taught the meditation also taught the active controls (p. 272). Importantly, this illuminates that meditation is an effective tool to create a calm environment in which to teach and learn.

Chapter III

Summary of Literature

Research shows that students all over the world are diagnosed with anxiety disorders. The CDC (2020) states that in the United States alone, 7.1% of school-aged children are diagnosed with some sort of anxiety disorder. One in three of those students have also been diagnosed with a comorbid disorder, often depressive or attention deficit hyperactivity disorders. The anxiety disorders researched for this thesis - generalized anxiety disorder (GAD), separation anxiety disorder (SAD), social anxiety/phobia (SP), including selective mutism (SM), and test anxiety – share several common features, including fear and anxiety and their accompanying behavioral issues. “*Fear* is the emotional response to real or perceived imminent threat, whereas *anxiety* is anticipation of future threat” (DSM-V; p. 189). According to the American Psychiatric Association and DSM-V, anxiety is a persistent and excessive worry or fear about a variety of domains. Fear often leads to task avoidance or avoiding a situation that leads to the anxiety. Anxiety in children and adolescents is observed as restlessness, difficulty concentrating, social withdrawal, and crying, among other symptoms. Researchers, such as Motoca, Williams, and Silverman (2012), found that children and adolescents with anxiety have poor social skills and

are viewed as having fewer positive peer interactions and increased negative peer interactions (p. 332). Studies, such as the one conducted by Zolog, Jane-Ballabriga, Bonillo-Martin, Canals-Sans, Hernandez-Martinez, Romero-Acosta, and Domenech-Llaberia (2011) suggest similar somatic, or physical, symptoms reported by youth with anxiety disorders. The most common complaints were those of experiencing headaches and abdominal pain (p. 205).

Anxiety disorders are often found as comorbid with other disorders. The most prevalent comorbidity research for anxiety disorders included depressive disorders (DD), attention deficit hyperactivity disorders (ADHD), Autism Spectrum Disorders (ASD) and Specific Learning Disabilities (SLD). The National Alliance on Mental Illness (NAMI) (2020) reported that approximately 60% of people diagnosed with anxiety also showed symptoms of depression. Researchers Zabowski and Storch (2018) stated that approximately 40% of children and adolescents diagnosed with Autism Spectrum Disorder (ASD) were also diagnosed with at least one anxiety disorder (p. 31). Jarrett, Wolff, Davis, Cowart, and Ollendick (2016) found Attention Deficit Hyperactivity Disorder (ADHD) to be comorbid in students with an anxiety disorder in 25% of the general diagnosed population and in 30-40% of clinically referred children (p. 636).

Besides biological etiology, the presence of trauma also triggers anxiety. Bullying is one form of trauma that impacts anxiety levels in children. In their research, Isolan, Salum, Osowaski, Zottis, and Manfro (2013) found that girls were more likely to be the victims of bullying than boys and displayed more anxiety symptomology (p. 643), while Brown and Fite (2016) determined that students who experienced stressful life events (or life-altering experiences that required significant adjustment) were more likely to have higher levels of anxiety and to be the victims of bullying (p. 2621).

Abuse is another form of trauma that causes anxiety. A study conducted by Cogle, Timpano, Sachs-Ericsson, Keough, and Riccardi (2010) found unique associations between physical abuse and post-traumatic stress disorder (PTSD) and social phobia (SP). Researchers also found the connection between childhood sexual abuse and generalized anxiety disorder (GAD) was strongest. Cases of childhood physical and sexual abuse were equally associated with panic disorder (PD) and separation anxiety disorder (SAD) (p. 154).

Immigration also caused higher levels of anxiety in youth. Suarez-Morales and Lopez (2009) discovered the highest level of anxiety symptoms in children of immigrant families or those who immigrated themselves. Symptoms included concentration problems, physiological issues, and worrisome symptoms. The anxiety remained evident when variables were controlled for age, gender, socioeconomic status, and daily stress unrelated to acculturation (p. 343).

In a culmination of causes and symptoms of anxiety, the current thesis aimed at determining the effects of anxiety on school performance and on interventions that can be implemented in the school and classroom settings to alleviate student anxiety symptoms. Researchers such as Mychailyszyn, Mendez, and Kendall (2007) and Khesht-Masjedi, Shokrgozar, Abdollahi, Habibi, Asghari, Ofoghi, and Pazhooman (2019) determined that students with higher levels of anxiety often displayed lower academic achievement. Khesht-Masjedi et al. (2019) concluded that students with symptoms of anxiety and depression were predisposed to focus their attention on interfering, irrelevant thoughts. They had little capacity for sustained attention on cognitive tasks, which could lead to academic failure (p. 803). As teachers and school professionals, it is our responsibility to help students feel and perform their best in the school setting. Below are professional strategies discussed within the thesis and how one could apply them within their classroom.

Professional Applications

As the rate of anxiety disorders in students increases, teachers should recognize anxiety symptoms and understand strategies that help alleviate the symptoms while students are in the classroom. While the curriculum and mindfulness strategies researched for this thesis focused specifically on success for students with anxiety, the strategies will also benefit all students.

Through the current research, several useful classroom strategies were recommended to provide student support. Researchers Collins, Woolfson, and Durkin (2014) determined that cognitive-behavioral interventions, generally used in clinical settings, were efficacious when delivered by teachers with proper training (p. 95). Two such widely researched and school-implemented programs are the FRIENDS Resilience Program and the Cool Kids Anxiety Program. Both programs focus on decreasing symptoms of anxiety by teaching participants about recognizing the feelings of anxiety, cognitive restructuring, and learning coping strategies. One main difference between the programs is that the FRIENDS program can be utilized both as a whole-class prevention curriculum or as a small-group intervention, while the Cool Kids program is designed for small-group delivery only. Researchers Essau, Conradt, Sasagawa, and Ollendick (2012) and Arendt, Thastum, and Hougaard (2016) documented program efficacy for each program, including anxiety symptom reduction and follow-up sessions with their respective participants.

Mindfulness strategies like yoga, relaxation and guided breathing, and meditation have been extensively researched. Mindfulness strategies include the curriculum-based MindUP program, an evidence-based, school-wide social-emotional learning tool can be used to reduce aggression and increase pro-social behaviors. It is also reported that children who participated in the MindUP program improved academic performance, especially in math and language arts

(MindUp for Life, 2020). In their research using the MindUP program, Schonert-Reickl, Oberle, Lawlor, Abbott, Thomson, Oberlander, and Diamond (2015) implemented lessons that initially focused on sense-based experiences, such as mindful smelling, and progressed to cognitive experiences, such as taking someone else's perspective. Lessons also included instruction in practicing gratitude and doing kind things for others (p. 53). Results of this study found significant improvements in executive functioning, self-reported well-being, and self- and peer-reported prosocial behaviors for MindUP participants (p. 61).

Strategies such as mindful yoga, guided breathing and relaxation, and meditation, can either be implemented based on a set curriculum or teacher-created and led intervention. One study, conducted by Stapp and Lambert (2020), examined the impact of mindfulness-based yoga intervention on perceived anxiety and stress. Yoga exercises were incorporated into the beginning of a class period. Both teachers and students reported on the effectiveness of the exercises on anxiety and stress levels. Teachers reported positive effects of the mindfulness-based yoga that manifested feelings of decreased stress and anxiety for students, especially on test days (p. 478). Larson, El Ramahi, Conn, Estes, and Ghibellini (2010), determined that students who participated in the breathing and guided relaxation sessions showed significantly less test anxiety post-intervention (p. 11). Britton, Lepp, Niles, Rocha, Fisher, and Gold (2014) also found that implementing meditation sessions within the classroom produced decreases in internalizing, externalizing, and attention problems (p. 271).

If lucky enough to obtain district approval and funding to implement a curriculum-based CBT or mindfulness program one might consider several mentioned in the thesis literature review. The programs documented have proven to be efficacious when provided by trained mental health professionals or teachers. However, not all schools or teachers have the luxury of

having access to such programs. A well-planned mindfulness approach can also effectively reduce anxiety symptoms and create a calm learning environment for all students. In my own classroom, I have used meditation strategies in collaboration with our school social worker. We lead a check-in and a short meditation to focus minds and calm bodies when students come into the classroom and before they begin the class work period. Students have reported a calmer approach to initiating math work after having completed the meditations.

Limitations of the Research

In conducting the current review, the studies reviewed were limited by search parameters that excluded any research with students under or over school age. The literature review was also limited to specific anxiety disorders, which included generalized anxiety disorder (GAD), separation anxiety disorder (SAD), social anxiety disorder/social phobia (SP) including selective mutism, and test anxiety. To further narrow the research focus, this literature review concentrated on strategies that could be used in school setting classrooms to relieve anxiety symptoms.

Limitations existed due to inadequate research available. While there is much research about the effects of cognitive behavioral therapy (CBT) in a clinical setting, few resources are available targeting programs that can be used in a classroom. The FRIENDS and the Cool Kids programs have been researched and are shown to be effective when delivered in school settings, however, there is limited research on the use in the United States.

Considering the national educational emphasis on intervention, specifically response to intervention (RtI), minimal research was found that spoke specifically to anxiety and RtI. However, one article, written by Sulkowski, Joyce, and Storch (2011), revealed that while tiered

interventions can help students with anxiety, interventions are not always implemented with fidelity, nor do they specifically target students with anxiety.

Implications for Future Research

Future research has been suggested by a variety of researchers. Based on the literature review, further research was suggested by Diliberto and Kearny (2015) specifically in the area of selective mutism. They suggested examining whether children with selective mutism differed in other key variables, such as speech frequency, school-based behavior, and parent and family characteristics, including parent perception of the child's selective mutism behavior. They also suggested assessing variables such as emotional regulation, attachment patterns, and Theory of Mind, which may be used in a differential diagnosis (p. 21).

Further research could consider the area of comorbid mental health disorders. There is a vast scholarship in regard to anxiety and depressive and attention deficit hyperactivity disorders, but further research into comorbid specific learning disability (SLD) is needed. SLD students often feel fear or worry because they are unable to perform at grade level as expected; however, there is a lack of literature regarding this specific issue.

While researchers such as Cogle, Timpano, Sachs-Ericsson, Keough, and Riccardi (2010) have examined the history of childhood abuse on lifetime anxiety disorder symptoms, there was little literature found on currently reported anxiety symptoms of children affected by abuse.

Several curriculum-based programs were reviewed as positive preventative strategies. However, there was little literature found on the use of these programs in the United States, either because these programs have not been regularly disseminated or because of their novel

status. It would be interesting to see how many districts in the United States have heard of or implemented these programs and to what degree they have been successful.

Larger sample sizes were also suggested in several studies, including some studies that recommended including older or younger participants. Gathering participants from more diverse cultural and socio-economic backgrounds has also been recommended to determine the generalizability of research results. Studies looking specifically at one type of anxiety disorder might take a broader approach to determine if results are universal for all anxiety types.

Conclusion

The current thesis aimed at determining the most common anxiety disorders for K-12 students; what caused the anxiety disorders; what symptoms may be presented and how teachers can identify students with anxiety; and what teachers and staff members can do within the school setting to help alleviate recognized anxiety symptoms.

While a variety of information exists discussing anxiety disorders and different clinical treatments that students may access, teachers are the first line of defense in support of our students. Students attend school daily and interact with teachers, who in turn may have special insight about how to help students be their best selves while at school. It is important for teachers and schools to recognize that many students suffer from some degree of anxiety and stress. Implementing simple, cost-effective strategies to help alleviate some of that pressure has been shown to increase academic and social performance, the goal of every school district.

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