

Anxiety Prevalence among High School Students

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### Abstract

A wide range of individuals experience some form of anxiety. Literature surrounding the topic of anxiety, specifically prevalence, the relation of anxiety and age, the implications of anxiety, and the importance of the school setting and interventions has been reviewed. Anxiety has implications for students in academic, personal, and social areas of life. The changes in anxiety have been studied among children and in various ways. Few studies have looked specifically at the changes in anxiety levels that happen within the high school years. This study aims to fill that gap by surveying high school students in grades 9-12, to determine prevalence of anxiety. Based on the results, suggestions for school interventions are made.

### **Anxiety Prevalence among High School Students**

Mental illness throughout the world and in the United States is a common occurrence. Neuropsychiatric disorders, including mood and anxiety disorders, “account for approximately 14% of global burden of disease and affect over 450 million people worldwide.” (Chou et al., 2012). According to The World Health Organization (WHO), (2004) there is a wide range in prevalence of mental disorders. They added that the United States has consistently high prevalence rates across all classes of disorder as compared to other countries (The World Health Organization, 2004). Within the mental illness category, internalizing disorders, such as major depression and phobias, are the most common anxiety-mood disorders in the United States (Kessler, Petukhova, Sampson, Zaslavsky, & Wittchen, 2012). Anxiety has been shown to interfere with people’s overall wellbeing. Anxiety consists of, often irrational, fears or worries as well as physical symptoms (Muris, Mayer, Freher, Duncan, & van den Hout, 2010; Thompson, Robertson, Curtis, & Frick, 2013). Research surrounding the general topic of anxiety is readily available (Costello, Copeland, & Angold, 2011; Essau, 2003; Keller, & Rowley, 1962; Sportel, Nauta, Hullu, de Jong, & Hartman, 2011). Though there is an abundance of literature surrounding the topic, not all areas or specific issues have been studied extensively.

Anxiety is one of the most prevalent mental health concerns for children and adolescents (Essau, 2003; Moksnes, & Espnes, 2012; Muris et al., 2010). Anxiety can be extremely impactful for adolescents, given the importance of wellbeing during times of transition (Costello et al., 2011). Sources of anxiety can vary greatly. Children and adolescents often experience anxiety when they have other psychological disorders

(Essau, 2003), if they are raised with anxious parents (Bogels, van Dongen, & Muris, 2003; Pereira, Barros, Mendonca, & Muris, 2014), and during times of transition (Broeren & Muris, 2009; Costello et al., 2011; De Wit, Karioja, Rye, & Shain, 2011; Grills-Taquechel, Norton, & Ollendick, 2010), to name a few. Treatment and awareness of anxiety can be essential in reducing the experience of negative symptoms that can continue throughout one's life.

School consumes a major part of children and adolescent's lives and a significant portion of their time. The school setting is highly connected to adolescents and their experience with anxiety (De Wit et al., 2011; Ingul, Klockner, Silverman, & Nordahl, 2012; Thompson et al., 2013). Troublesome anxiety can be exacerbated during the high school years as students face extreme transitions and social and academic pressures (Grills-Taquechel et al., 2010; Henry, Jamner, & Whalen, 2012; Moksnes, & Espnes, 2011). The school setting is not all bad. Teachers, counselors, administrators, and peers are all in a unique position to bring awareness to anxiety and teach effective ways to cope or manage anxiety (Thompson et al., 2013; Thompson, & Trice-Black, 2012; Tillfors et al., 2011; Tomba et al., 2010). Often, the school setting can be a first line of defense for students in dealing with mental health concerns.

Unfortunately, more adolescents are experiencing problematic anxiety than are recognized or treated within the school setting (De Wit et al., 2011; Miller, Gold, Laye-Gindhu, Martinez, Yu, & Waechtler, 2011; Thompson et al., 2013). Effective coping skills can help adolescents overcome many of the challenges they face during adolescence and throughout life (Lothmann, Holmes, Chan, & Lau, 2011; Marks, Sobanski, & Hine, 2010; Muris, Meesters, & Gobel, 2002; Thompson et al., 2013;

Thompson, & Trice-Black, 2012; Von Der Embse, Barterian, & Segool, 2013). The longer problems with anxiety go unnoticed the more impact they will have on adolescent's lives (Ingul et al., 2012). Awareness and treatment of anxiety can be crucial in reducing comorbidity among mental health disorders (Miller, Laye-Gindhu, Bennett, Liu, Gold, March, Olson, & Waechter, 2011), slowing progression of anxiety into adulthood (Lothmann et al., 2011), and offering adolescents protection from the stressors that are frequent during that stage of life (Broeren & Muris, 2009; Leikanger, Ingul, & Larsson, 2012; Marks et al., 2010). Students would be able to function more effectively and focus more on academics, reducing behavioral, attendance, and social concerns for students themselves, teachers, and administrators (Bostick & Anderson, 2009; Lothmann et al., 2011; Marks et al., 2010; Muris et al., 2002; Thompson et al., 2013; Thompson, & Trice-Black, 2012; Von Der Embse et al., 2013). Involving parents could help create consistent support and potentially encourage them to seek help for their own needs, if they exist (Bogels et al., 2003).

Though anxiety is a common mental health concern among individuals of all ages and has an abundance of literature, there are areas that could benefit from further exploration (Keough & Schmidt, 2012; Leikanger et al., 2012). Existing literature that focuses on the prevalence and comparing level of anxiety between high school grade levels is not as wide spread (Muris et al., 2010). Literature surrounding the topic of anxiety, specifically within adolescents, will be reviewed as current research is considered. An overview and the prevalence of anxiety are important to look at in connection with age and developmental level to demonstrate the significance of anxiety concerns for adolescents. The implications of anxiety and what can be done, specifically

within a school setting, to prevent and reduce anxiety concerns that could lead to ongoing problems will also be taken into account. The purpose of this study was to determine the presence of anxiety among high school students in varying grade levels in a rural high school through the administration of a survey.

Many high school students experience developmentally appropriate stressors that are related to anxiety (De Wit et al., 2011; Grills-Taquechel et al., 2010; Marks et al., 2010; Moksnes & Espnes, 2011). Often, students do not seek help for a problem or recognize that they have one until it is severely interfering with their overall functioning. If students are not able to recognize when they have a problem with anxiety they can suffer physically, socially, academically, and emotionally (Bostick & Anderson, 2009; Ingul et al., 2012; Thompson et al., 2013). By understanding if there are more students experiencing anxiety than are known of, students can be taught to recognize signs and symptoms and learn coping mechanisms. It is important to know the population affected in order to tailor intervention techniques.

To gain insight into the prevalence of students experiencing anxiety, the Screen for Child Anxiety Related Disorder (SCARED) Child Version was administered to 146 general education students in grades 9-12 in a rural high school. As a result, the school, specifically the counseling department, will have a better understanding of the students affected by anxiety. Given this information, the counselors can determine what level of intervention would be most appropriate and beneficial for students. This research will look specifically at what the prevalence of anxiety among high school students is, what the most frequent subcategories of anxiety are, and what the differences are between grade level and sex.

## **Review of Literature**

### **Prevalence and Overview**

Frequently, anxiety is seen and diagnosed in school aged children and adolescents. Approximately 8-12% of children meet some criteria for an anxiety disorder (Cristea, Bengam & Opre, 2008; Miller, Laye-Gindhu, Bennett, Liu, Gold, March, Olson, & Waechtler, 2011; Thompson, Robertson, Curtis, & Frick, 2013). Anxiety can be defined as “subjective feelings and thoughts and observable fight-flight-freeze behavior, but also in physical symptoms such as palpitations, trembling, and shortness of breath.” (Muris, Mayer, Freher, Duncan, & van den Hout, 2010). Interpretations and misperceptions often exacerbate anxiety, in that individuals interpret situations as more threatening than they actually are. According to Muris et al., (2010), a cycle of thinking is created in which people internalize and reflect on the negative implications their symptoms have and become fearful of the anxiety itself, as well as the situation provoking the anxiety. Severe anxiety impacts overall functioning and wellbeing.

Developmentally, children and adolescents experience anxiety that adapts to their stage of development (Broeren & Muris, 2009; Leikanger et al., 2012; Thompson et al., 2013). Broeren and Muris (2009), suggest these normal fears and developmental anxiety are the starting point for pathology in adolescents. Miller, Laye-Gindhu, Bennett, Liu, Gold, March, Olson, and Waechtler, (2011) describe anxiety as becoming significant when it is excessive and interferes with children’s ability to function and experience healthy development.

Comorbidity is frequently associated with anxiety related disorders. Essau (2003), found that the majority of adolescents met criteria for one anxiety disorder, and up to

80% of anxious adolescents met the diagnosis for multiple subtypes of anxiety. Essau (2003) reports that comorbidity leads to more distress, and higher rates of distress often encourage people to seek help. Adolescents do not however, have high rates of comorbidity at this stage, decreasing the likelihood that they will seek out help for specific anxiety concerns.

Though anxiety can be typical during child development, signs of something more serious can be missed (American Academy of Child and Adolescent Psychiatry, 2012). When anxiety symptoms are unnoticed or misinterpreted as behavioral or academic concerns, children's social, academic, and emotional wellbeing can be negatively affected (Thompson et al., 2013). Thompson et al., (2013) also discussed that children learn to suppress their anxiety, which hides the outward signs, but does nothing to reduce internal symptoms. It can be difficult to recognize symptoms of anxiety and other mental health issues because children often internalize the problem (Miller, Gold, Laye-Gindhu, Martinez, Yu, & Waechter, 2011). When children and adolescents internalize their problems it is difficult for adults to offer support. According to De Wit, Karioja, Rye, and Shain, (2011) and Miller, Gold, Laye-Gindhu, Martinez, Yu, and Waechter, (2011), only a small portion of students experiencing mental health problems actually receives diagnosis or treatment. When the root of their problems goes unnoticed and children do not receive support, those problems can continue or escalate and cause issues in personal, social, and academic areas of life (De Wit et al., 2011; Grills-Taquechel, Norton, & Ollendick, 2010; Pereira, Barros, Mendonca, & Muris 2014; Thompson et al., 2013). Early knowledge of coping is important for proper long-term management of anxiety concerns (Muris, Meesters, & Gobel, 2002). Symptoms of anxiety and lack of coping

skills can continue into adulthood if adolescents do not receive help (Grills-Taquechel et al., 2010; Muris et al., 2002). Marks, Sobanski, and Hine (2010) indicate that negative thinking and behavior patterns adapted during adolescence could increase the likelihood of developing psychological maladjustment when dealing with stressful life events. Additionally, Pereira et al., (2014) explores the idea that childhood anxiety disorders often lead to adult disorders along with comorbid disorders. Similarly, Miller, Gold, Laye-Gindhu, Martinez, Yu, and Waechtler, (2011) discuss how early intervention has long lasting effects and can decrease future secondary disorders such as depression, suicide, and substance abuse.

### **Anxiety and Age**

As children develop into adolescents, their anxiety adapts to become more typical for their stage of development. Adolescence is an important point in development when changes are frequent and factors that can influence anxiety are everywhere. Marks et al., (2010) pose that children and adolescents face negative life events and hassles, as their development can be tumultuous. Marks et al., (2010) describe individuals who encounter negative life events as having higher rates of anxiety.

Anxiety transitions from concrete fears of physical danger to more abstract anxiety such as social concerns (Broeren & Muris, 2009; Leikanger et al., 2012). Adolescents often experience transitions internally and externally. At early stages, adolescents experience puberty where they gain independence and responsibility. Next, they focus on romantic relationships, school attendance and performance, and transition into planning for adulthood and life decisions (De Wit et al., 2011; Grills-Taquechel et al., 2010; Moksnes & Espnes, 2011). Costello, Copeland, and Angold, (2011) suggests

adolescence begins biologically and effects social and emotional development. This added stress has been shown to increase with age and relate to increased levels of anxiety (Moksnes & Espnes, 2011). According to Muris et al., (2010), as children age their brain development continues and allows them to link their physical symptoms to an anxiety-provoking situation. These symptoms and links lead to internal attributions, such as thinking they will lose control, panic, become sick, or that they are crazy and external attributions, such as relating shortness of breath and increasing heart rate to real dangers, that often increase with age (Muris et al., 2010). Broeren and Muris, (2009) discuss adolescent's cognitive abilities as related to anxiety. They indicate that anxiety comes from threats, which must be conceptualized, and that conceptualization depends upon the level of cognitive ability. Therefore, they maintained that as adolescents gain cognitive abilities they would have more negative thoughts and interpretations of events leading to increased anxiety. Additionally, Bogels, van Dongen, and Muris (2003) studied children's interpretation bias. They found that as children's negative interpretations of ambiguous events increased so did anxiety. Lothmann et al., (2011), studied the impact of interpretation bias on adolescent anxiety. They discovered that during this adolescent period negative interpretation or cognitive biases coincide with increasing anxiety risks. In addition, they found that interpretation biases are flexible at this age. This implies that training adolescents to use more positive interpretations could diminish the risk of developing more severe anxiety.

As they age, adolescents become more concerned with their school success and how they are perceived than they did as children (Thompson et al., 2013). These changes coincide with maturation, less reliance on adults, and extreme concern with peer approval

(De Wit et al., 2011). Adolescents are capable of understanding more about how others perceive them and the impact of their actions on others and on their own success. These pressures and new understandings can impact adolescent's self-esteem and definition of self-worth (De Wit et al., 2011). De Wit et al., (2011) explored the relationship between student's perceived support and mental health, including self-esteem, social anxiety, and depression, among freshman students as they transitioned into their sophomore years. They found that self-esteem decreased as perceived support decreased. This reduction in self-esteem was further linked with increases in social anxiety. Moksnes and Espnes (2012) explored the relationship between gender, age, self-esteem, and anxiety among age groups, 13-14, 15-16, and 17-18. They found that students with low self-esteem had higher rates of anxiety, and that there was a significant difference in level of self-esteem at the tested age ranges. Boys' self-esteem gradually increased at each age group and girls' self-esteem decreased from ages 13-14 to 15-16, and increased past the age 13-14 level at ages 17-18. Therefore, self-esteem may have implications on mental health and anxiety levels during adolescence (Moksnes & Espnes, 2012). Further research may be beneficial to determine a specific relationship between anxiety prevalence and age of students.

It is important to recognize the academic pressure students face as they navigate through adolescence. Changes in school systems and increased standards leave teachers and students overwhelmed (Bostick & Anderson, 2009; Thompson et al., 2013; Von Der Embse, Barterian, & Segool, 2013). As standards increase, students place more pressure on themselves to do well and keep up with everyone else. This desire to do well has been linked with anxiety in multiple studies concerning student anxiety (Moore, 2010;

Morgan, Sutton-Smith, & Rosenberg, 1960). Morgan et al., (1960) looked at student's anxiety levels in grades five and six. They learned that high achieving fifth grade students were more anxious than low achieving students, but once in sixth grade the low achieving student became more anxious than the high achieving student. This suggests student's anxiety is flexible between grade level and the pressures to do better, or to remain in a high achieving position, may influence anxiety. Miller, Gold, Laye-Gindhu, Martinez, Yu, and Waechtler, (2011) discuss how adolescents striving to be perfect often have irrational beliefs that exacerbate anxiety. Shaunessy, Suldo, and Friedrich (2011), found that student's maladaptive perfectionism positively correlates with anxiety and that general education students have slight increases in maladaptive perfectionism as they move toward their senior years. This may indicate a need to explore the relationship between anxiety and high school grade level further. Shaunessy et.al, (2011) did not look at a direct relationship between grade level and anxiety level. They did provide evidence that suggests students would adapt more behaviors that can be linked to higher anxiety. As students reach the end of their high school career, they are focused on future decisions and the need to do well to meet expectations and standards, and prepare to move on to college (De Wit et al., 2011).

Moksnes and Espnes (2011) compared state anxiety, self-esteem, and state depression among adolescents. Results found weak correlations with age, but suggest that transitions from early adolescence to later adolescence bring on more transitional stress, which may relate to anxiety. Looking at earlier adolescence, Keller and Rowley (1962) found that there was not a significant difference in prevalence of anxiety between seventh grade and ninth grade for boys, but girls showed a significant increase in anxiety during

that time. Carbello et al., (2010) explored the diagnostic stability of anxiety in a longitudinal study. They tracked changes for individuals at ages 2-5, 6-12, and again at 13-18. Results indicate that anxiety tends to remain stable depending on the subtype. As stated by Carbello et al., (2010) “Phobic and social anxiety disorders showed the highest diagnostic stability, whereas OCD and “other” anxiety disorders (which include generalized anxiety disorder and panic disorder) showed the lowest diagnostic stability.” Considering that this research suggests that anxiety persists, it would be helpful to look more specifically at the prevalence between grade levels in high school. Similarly, Costello et al., (2011) examined psychopathology data at transition points, childhood to adolescence and adolescence to adulthood. They found that rates of psychopathological disorders increased at both transition points. They recommend that developmental stages be explored further to understand the changes within the stages. Likewise, Leikanger et al., (2012) suggest “year-to-year variations in anxiety symptoms during adolescence” be explored further. Leikanger et al., (2012) investigated anxiety symptoms among adolescents 13-19 years of age. Their results showed that girls had generally higher scores than boys and an increase in anxiety symptoms surrounding the 14-15 year old age range.

### **Implications of Anxiety**

The symptoms of anxiety can interfere with functioning at any stage in life. For children and adolescents, this interference is particularly important because they are in school learning the skills to become successful adults. De Wit et al., (2011) suggest that students with mental health concerns might become neglected by teachers and rejected by peers, possibly escalating the mental health concerns because of decreased perceived

support. The transitions students encounter as a normal part of development often lead to decreased motivation, academic performance, and self-perceptions when they struggle with anxiety (Grills-Taquechel et al., 2010). Students who are distracted by anxiety symptoms struggle to focus on classwork, worry excessively, experience physiological arousal, stomachaches, headaches, often poor attendance, and subpar performance (Bostick & Anderson, 2009; Ingul et al., 2012; Thompson et al., 2013). Specifically, poor attendance can lead to school drop out and adulthood health, social, and economic problems (Ingul et al., 2012). Considering test anxiety exclusively, student's anxiety interferes with thoughts, feelings, and behaviors that impact test results. These test results then reinforce student's anxiety about performing well, perpetuating the cycle of anxiety (Von Der Embse et al., 2013). Anxiety sufferers have lower self-efficacy and can have difficulty regulating their emotions. Anxious students may also be at greater risk for depression, addiction, eating disorders, and suicidality (Miller, Laye-Gindhu, Bennett, Liu, Gold, March, Olson, & Waechtler, 2011). As part of the increased responsibility and independence students receive, as they get older, emotional support often decreases in secondary school. It has been found that anxiety symptoms can escalate when emotional support decreases (De Wit et al., 2011). When anxiety is constantly getting in the way for student's overall functioning, they tend to have psychosocial difficulties and school can be a difficult place for them to be. As discussed, adolescents frequently internalize their anxiety. Sportel et al., (2011) studied the effects of internalizing disorders on adolescent's behavioral inhibitions and attentional control. They defined behavioral inhibitions as "reactive temperament" and attentional control as "regulative temperament". They learned that as adolescents experience internalizing disorders their behavioral inhibitions

increase and attentional control decreases. This decreasing buffer to anxiety and increasing acting out behavior may exacerbate the difficulties adolescents have in school. Henry, Jamner, and Whalen, (2012) studied the effects of social anxiety on cigarette smoking among high school students. They found that students were more likely to have the urge to smoke when their social anxiety was greater. Henry et al., (2012) discuss the possible reasons for adolescents urge to smoke when anxious, such as self-medicating and avoidance of greater anxiety by giving in to peer pressure.

Miller, Laye-Gindhu, Bennett, Liu, Gold, March, Olson, and Waechter, (2011) recommend that children and adolescents receive support as soon as possible in order to combat these effects. Lothmann, Holmes, Chan, and Lau, (2011) describe how adolescents are at a pivotal point in development where their thinking patterns are moldable and stressed that prevention of later life anxiety and depression begins at this time. Bogels et al., (2003) findings state that children's negative interpretations of events, which increase anxiety, are reduced when they discuss the events or situations with parents.

### **The School Setting and Interventions**

The school setting offers the opportunity to assist students with anxiety concerns. Miller, Gold, Laye-Gindhu, Martinez, Yu, and Waechter, (2011) propose the idea that providing mental health services in schools can be beneficial by reaching a large number of students at one time. They also suggest that linking mental health services and academic settings could help create a favorable environment to improve overall success and achievement. Bostick and Anderson (2009) discuss the importance of removing barriers, such as anxiety and other mental health problems, in school settings to increase

performance. Ingul et al., (2012) studied school absenteeism and its relation to multiple risk factors, including anxiety. They found that adolescents who have internalizing problems, such as high social anxieties, tend to have no or normal absences from school, whereas students with externalizing problems have higher rates of absenteeism. This suggests that the students suffering from internalizing anxiety are in school and available to receive support in dealing with their problems. In schools, referrals from parents and teachers often help students deal with anxiety, one of the most prevalent forms of psychopathology that occurs in this age group. Students frequently present with academic, behavioral, and social concerns, which are masking anxiety and result in application of ineffective coping skills. Understanding the prevalence of student anxiety will assist in using the opportunity of the school environment to recognize and address students' mental health concerns (Thompson and Trice-Black, 2012). De Wit et al., (2011) state that teachers are in a position to provide a sense of security for students to explore the world, experiment and take risks, and learn emotional regulation and coping strategies. Similarly, Martinez-Monteagudo, Inglés, Trianes, and Garcia-Fernández, (2011) findings suggest that a positive school environment inclusive of supportive aspects promotes adolescent's wellbeing, healthy development, and positive learning experiences. Lothmann et al., (2011), claim that long-term anxiety prevention begins with understanding the individual's anxiety early on.

Various research studies have been conducted on in-school interventions to help manage student anxiety (Muris et al., 2002; Thompson et al., 2013; Thompson, & Trice-Black, 2012; Von Der Embse et al., 2013). Overall, results suggest providing students with knowledge and coping skills promotes wellbeing, achievement, and lower levels of

anxiety (Lothmann et al., 2011; Marks et al., 2010; Muris et al., 2002; Thompson et al., 2013; Thompson, & Trice-Black, 2012; Von Der Embse et al., 2013). Adolescents often use coping strategies that include pessimistic thinking and rumination. For example, Marks et al., (2010), examined the innate presence of mindfulness and positive coping skills in adolescents. They found that rumination and being stuck on negative thinking increased levels of stress and anxiety. This suggests that teaching adolescents to become mindful might enhance their coping skills. Von Der Embse et al., (2013) discuss how interventions could be effective when implemented within all tiers, when referring to a Response to Intervention model. This suggests that schools can implement effective interventions large scale, in groups, and individually.

More specific interventions have also been explored in existing research. School wide programs such as FRIENDS for life, which includes cognitive behavioral therapies in a classroom curriculum, has been shown to be effective in teaching children to recognize signs of anxious feelings, irrational thoughts, and maladaptive behaviors (Miller, Laye-Gindhu, Bennett, Liu, Gold, March, Olson, & Waechtler, 2011). Though completed individually, there are multiple computer delivered or online programs available that schools can offer wide scale. Of those, Cool Teens, Camp Cope-a-Lot, and the Brave Program can be used with adolescent aged students. With these programs students have been found to have reductions in levels of anxiety similar to children and adolescents who participated in individual counseling (Thompson et al., 2013). Using programs that include many or all students can be beneficial due to the fact that peers can act as role models and encourage positive relationships and conflict resolution in and out of school (Miller, Gold, Laye-Gindhu, Martinez, Yu, & Waechtler, 2011).

Group counseling can be an effective strategy to reach students who continue to struggle on a more individualized basis, while remaining an efficient use of time and resources within the school setting. Paone, Malott, and Maldonado, (2008) explored group activity therapy with adolescents. They discovered that group activities in school settings assist with development of moral reasoning, giving the opportunity to take multiple perspectives, and linking the concrete world to developmental thoughts, all things adolescents are struggling with during their developmental stage. Bostick and Anderson (2009) studied a social skills group intervention with third grade students. They found students were less concerned with friendship and social skills following the group activities. Parents and teachers also saw improvements in student's social skills abilities. Social anxiety has been shown to be one of the most prevalent forms of anxiety among the adolescent age group (Bogels et al., 2003; Bostick & Anderson, 2009; Broeren & Muris, 2009; Carballo et al., 2010; De Wit et al., 2011; Grills-Taquechel et al., 2010; Henry et al., 2012; Leikanger et al., 2012; Miller, Gold, Laye-Gindhu, Martinez, Yu, & Waechtler, 2011). Muris et al., (2002), explored the effects of Cognitive Behavioral Therapy (CBT) Groups on children ages 8-12 who experienced anxiety. They found that using CBT techniques such as, relaxation techniques, role-play, coping self-talk, and exposure modeling could significantly reduce anxiety. Results show assessment scores decreasing back to a normal range from pre-treatment scores. Group counseling has been beneficial in improving the school atmosphere and students perceived levels of support, which as discussed previously can impact student anxiety (Thompson et al., 2013). Miller, Gold, Laye-Gindhu, Martinez, Yu, and Waechtler, (2011) studied a school based group intervention program with ninth and tenth grade students focusing on skills for

academic and social success (SASS). They found reductions in anxiety symptoms, specifically in social areas. They suggest using brief school based programs to eliminate “totally inhibiting anxiety” for students.

Individually, students can receive help to further understand and identify their emotional triggers, and develop coping skills and build tolerance for their emotional discomfort (Thompson et al., 2013). As Muris et al., (2002) describe, CBT techniques can also be used individually. They indicate that, when used to treat anxiety, CBT and essential components, such as relaxation techniques and cognitive restructuring, could have long lasting effects. Additionally, CBT can be used for individuals in more technological forms. Tillfors et al., (2011) studied the effects of an Internet based CBT program for adolescents experiencing social anxiety. They discovered that the program could help reduce anxiety concerns. Furthermore, they discuss how mental health disorders often have factors in common such as, biased interpretations, avoidance, and safety behaviors and that many of those comorbid concerns can benefit from CBT treatment. Keough and Schmidt (2012) explored the effectiveness of a PowerPoint presentation and interoceptive exposure session on anxiety sensitivity. They found that after one 50 minute individual session, spent discussing stress and myths of physiological arousal (PowerPoint presentation), and getting their body used to feared sensations through repeated exposure (interoceptive exposure), they had an immediate reduction in sensitivity to anxiety, as well as long term decreases. It is possible that this could be effective as a large group presentation to reach students at a classroom level, as opposed to solely individually.

**Objectives and Purpose**

There is an abundance of literature surrounding the topic of anxiety. As Muris et al., (2010) state, there are many areas that are understudied or misunderstood and deserve further exploration. Prevalence among students and successful interventions are among the areas deserving of more attention. It is important for students to have the tools to succeed and excel in school and life. Bringing awareness to the prevalence of anxiety, specifically in high school, will hopefully improve on coping skills taught to students in order to improve their lifelong wellbeing (Costello et al., 2011). Costello et al., (2011) suggest that a full review of the changes within each developmental stage, childhood, adolescence, and adulthood, could be beneficial in understanding the transition of psychopathology.

Anxiety is a commonly experienced form of psychopathology that occurs in all stages of life. Frequently, anxiety can expand beyond developmentally appropriate levels, interfering with individuals overall functioning. Adolescents are often among those who experience negative effects from anxiety. As they transition through high school they encounter many changes internally and externally that aggravate their anxiety, such as increased cognitive abilities, changing perceptions, and increased pressure from others. This anxiety can lead to life-long effects, higher prevalence of co-morbid disorders, school failure, and social problems. Unfortunately, little research has focused specifically on the changes in anxiety during the high school years. In hopes of understanding more about the adaptations of adolescent anxiety as they move through high school, student's experiences will be explored. Suggestions to increase support and teach adolescents about

anxiety and coping mechanisms at an early age, and suggestions for in school interventions at school-wide, group, and individual levels were reviewed.

The current study aims to explore how a student's anxiety changes as students progress through high school. Many existing studies examine differences in student anxiety as they transition from childhood to adolescence, tested anxiety in other age ranges, and tested effectiveness of interventions (Bogels et al., 2003; Broeren & Muris, 2009; Costello et al., 2011; Embse et al., 2013; Keough & Schmidt, 2012; Miller, Laye-Gindhu, Bennett, Liu, Gold, March, Olson, & Waechter, 2011; Muris et al., 2002; Paone et al., 2008). Other research examines factors such as self-esteem, high and low achieving students, and stress as related to adolescent anxiety (De Wit et al., 2011; Moksnes, & Espnes, 2011; Moksnes, & Espnes, 2012; Moore, 2010; Morgan et al., 1960; Thompson et al., 2013). Those studies suggest anxiety and self-esteem or stress can be related, but there was little research on the relationship of anxiety with high school grade levels. Expanding on this existing literature by looking specifically at the differences that happen in high school, when students are experiencing changes and increasing pressure in academic, personal, and social aspects of their lives, could offer a better understanding of the prevalence of anxiety during this important stage of development. It has been shown that interventions performed in school can help students decrease anxiety and learn coping skills that they will carry through their lives (Bostick & Anderson, 2009; Lothmann et al., 2011; Miller, Gold, Laye-Gindhu, Martinez, Yu, & Waechter, 2011; Miller, Laye-Gindhu, Bennett, Liu, Gold, March, Olson, & Waechter, 2011; Muris et al., 2002; Paone et al., 2008; Thompson et al., 2013; Tillfors et al., 2011; Tomba et al., 2010). The results of this study will help counselors determine whether there is a need for

specific anxiety related interventions within the high school setting. It is hypothesized that prevalence of students anxiety will be highest in ninth and twelfth grade when students are in periods of transition adjusting to roles within high school and preparing for the adult world.

### **Method**

This study followed a quantitative nonexperimental simple descriptive design, examining the prevalence of problematic anxiety among high school students.

Problematic anxiety often goes unnoticed in adolescents or is considered developmentally appropriate. With the use of a survey, this study aimed to determine what the prevalence of problematic anxiety was among high school students, what the differences were between grade levels, what the differences were between males and females, and what type of anxiety was most prevalent.

### **Setting**

This study took place in a rural high school in the Northeast United States. In the school, 26% of students are eligible for free lunch, 7% eligible for reduced price lunch, 37% are economically disadvantaged, and 1% are English language learners. Students in the school consist of 1% African American, 3% Hispanic/Latino, 1% Asian/ Hawaiian/ Pacific Islander, 2% multiracial, and 93% Caucasian. The survey was administered in classrooms during social studies classes throughout the school day. Instruction was given to the participants all at one time. Classes had between 7 and 27 students. Each student had his or her own desk in which to complete the survey.

**Participants**

Convenience sampling was used for this study. The participants were limited to those at the researcher's internship site. Participants consisted of 146 grade 9-12 students, within the school, who were willing to be involved in the study.

A total of 146 students completed the survey, 57 males and 89 females. Among those, 21 were in ninth grade, 20 were in tenth, 39 were in eleventh, and 66 were in twelfth. Eight of the males were freshmen, two sophomores, 13 juniors, and 34 seniors. Thirteen freshman, 19 sophomore, 25 junior, and 32 senior females took the survey. All students were enrolled in general education classes and signed up to take at least one social studies course.

**Measurement Instruments**

The Screen for Childhood Anxiety Related Emotional Disorders (SCARED) was used to assess student's level of anxiety. The SCARED is a self-report test that screens for anxiety disorders among children ages 8-18. The assessment has 41 questions that ask the survey taker to rate symptoms as 0 meaning not true, 1 meaning somewhat true, and 2 meaning very true. The SCARED has four factors measuring more specific types of anxiety including, generalized anxiety, social phobia, separation anxiety, and panic disorder which all align with the DSM-IV-TR classification for anxiety disorders. In addition the SCARED measures a fifth factor, significant school avoidance or school phobia. Students take the survey individually and rate symptoms based upon their experiences within the past three months.

Survey responses are added for a total score between 0 and 82. Scores 25 and above may indicate a problematic level of anxiety or existence of an anxiety disorder.

The five factors are used for scores of 30 and above which may indicate a more specific anxiety disorder. Each subscale has a series of questions whose scores add to measure that factor. When scores are above a certain point for each set of factor questions, that factor may be a specific area of concern. Summative scores for specified questions of 7 or more may indicate panic disorder, 9 or more may imply generalized anxiety, 5 or more may suggest separation anxiety, 8 or more may indicate social anxiety, and 3 or more may reveal a problem with school phobia or significant school avoidance.

The reliability and validity of the SCARED have been established and the assessment has been tested previously to establish its use with children and adolescents (Birmaher et al., 1999). The overall internal consistency as well as internal consistency among the subscales was proven with Cronbach's ( $\alpha$ ) ranging from .71 to .93 (Birmaher et al., 1999; Haley, Puskar, & Terhorst, 2011). Test-retest reliability has also been reported to have a coefficient range from .78-.95 (Birmaher et al., 1999; Essau, Anastassiou-Hadjicharalambous, & Muñoz, 2013). The SCARED has also been found to have a significant correlation with other child and adolescent anxiety assessments (Birmaher et al., 1999).

### **Procedure**

The data were collected through use of a survey (see Appendix A) during a one-week period where two visits were made to each classroom. The first visit was to introduce the research and give students permission forms; the second visit was to administer the survey. Students were introduced to the study on day one during a classroom presentation by the researcher. Students were given parental consent forms and instructed to bring them back during the next class, two days later, if they wished to

participate. On day two the survey assessment was administered to students who returned consent forms and still wished to participate. Students were instructed to read directions, answer all questions, and return the survey to the researcher. The surveys were administered to students during social studies classes during the regular school day. Students were given approximately 10-15 minutes to complete the survey.

In order to maintain student confidentiality, student names were not required on any survey responses. Consent forms, with student names, and completed surveys were kept in separate locations in the researchers locked office. All results will remain anonymous and identifying school information will be kept confidential in any reporting or potential publications. At the completion of the research project all surveys and consent forms will be destroyed.

### **Data Analysis**

Quantitative data analyses were used in this study. The results of the survey measuring student anxiety were analyzed using descriptive and inferential statistics. Anxiety level was measured by responses to 41 items ranked zero to two and set as a scale variable, sex was categorized by either male or female set as a nominal variable, and grade was defined as 9, 10, 11, or 12 set as a scale variable. Statistical analyses were conducted on each of the surveys to measure the mean and standard deviation for the variables grade and sex. ANOVAs, multivariate tests, and chi-square tests were conducted to compare mean scores and identify if there were significant differences between males and females, grade levels, and type of anxiety. The results were analyzed to determine the overall prevalence of anxiety and the most prominent type of anxiety, if

ninth and twelfth grade students had the highest levels of anxiety, and if females experience anxiety more often than males.

### Results

The first research question examined overall prevalence of anxiety. Using descriptive statistics the range, mean, and standard deviation were calculated for all 146 survey responses. The scores ranged from 1 to 61 with a mean of 22.06 (sd=14.13). The lowest possible score was 0 and highest 82. The survey categorizes scores 25 and higher as possibly indicative of the presence of an anxiety disorder and scores 30 and above may suggest more specific types of anxiety, measured by the subscales on the questionnaire (See Appendix B). Of 146 students surveyed, 52 had scores 25 or higher. Of the 52 that scored high enough to potentially fit criteria for an anxiety disorder, 42 scored 30 or above and were measured using the subscales.

The second research question investigated the differences in anxiety among the grade levels 9, 10, 11, and 12. Descriptive statistics were used to determine the range, mean, and standard deviation (see Table 1).

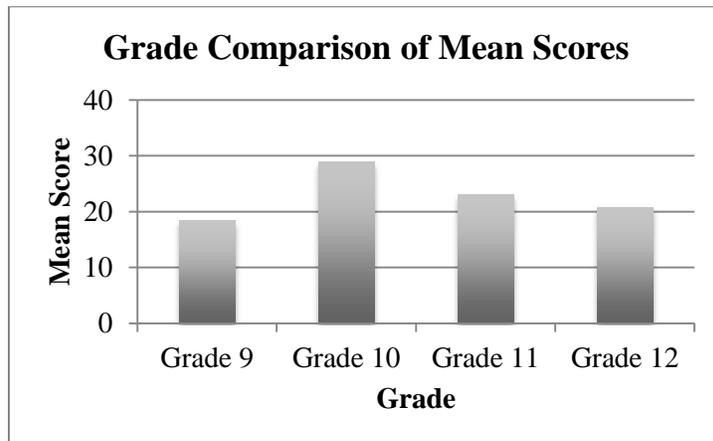
Table 1 *Sample Size, Mean Values, and Standard Deviations for overall survey responses*

<b>Grade</b>	<b>Sample Size (N)</b>	<b>Range</b>	<b>Mean</b>	<b>Standard Deviation</b>
<b>9</b>	21	4-48	18.33	11.08
<b>10</b>	20	5-56	28.85	15.24
<b>11</b>	39	4-61	22.95	15.37
<b>12</b>	66	1-59	20.67	13.12

*Notes.* Survey items were answered using a Likert-type scale with 0 = not true/hardly ever true, 1= somewhat true/sometimes true, and 2= very true/often true. Means represent total scores on surveys.

Among grade 9, 21 scores ranged from 4 to 48 with a mean of 18.33 (sd=11.08). Grade 10 students included 20 scores which ranged from 5 to 56 with a mean of 28.85 (sd=15.24). Students in grade 11 completed 39 surveys with a range of 4 to 61 and mean of 22.95 (sd=15.37). Grade 12 students comprised 66 scores ranging from 1 to 59 with a mean of 20.67 (sd=13.12). Descriptive statistics were used to compare means from grade and survey questions (see Figure 1). This data revealed that students in grade 10 experience higher average scores of anxiety.

Figure 1 *Comparison of Mean Scores by Grade*



A crosstabs analysis was used to determine if responses to questions varied by grade. The analysis revealed 7 out of 41 items had significant p-values (see Table 2). This data revealed that students answer these questions differently depending on what grade they are in.

Table 2 *Crosstabs Chi-Square Tests Analysis for Grade by Anxiety Survey Items*

Survey Question	Pearson Chi Square	P value	Cramers-v
<b>When I get frightened, I feel like passing out</b>	14.54	.024	.22
<b>I worry about being as good as other kids</b>	13.62	.034	.22
<b>When I get frightened, I sweat a lot</b>	29.09	.000	.32
<b>I am a worrier</b>	18.25	.006	.25
<b>I am afraid to be alone in the house</b>	12.56	.051	.21
<b>I worry about what is going to happen in the future</b>	15.96	.014	.23
<b>I worry about things that have already happened</b>	12.42	.053	.21

Each significant question is broken down by number of responses for each grade (see Table 3). This data depicts the varying responses between students in different grades and revealed that ninth grade students have less “very true” responses.

Table 3 *Crosstab Analysis for Grade by Significant Question*

Survey Question		Not true	Somewhat true	Very true	Total
<b>When I get frightened, I feel like passing out</b>	Grade 9	21	0	0	21
	Grade 10	14	5	1	20
	Grade 11	36	1	2	39
	Grade 12	60	4	2	66
<b>I worry about being as good as other kids</b>	Grade 9	8	12	1	21
	Grade 10	4	10	6	20
	Grade 11	21	12	6	39
	Grade 12	36	23	7	66
<b>When I get frightened, I sweat a lot</b>	Grade 9	20	1	0	21
	Grade 10	9	3	8	20
	Grade 11	28	7	4	39
	Grade 12	42	20	4	66

<b>I am a worrier</b>					
	Grade 9	12	7	2	21
	Grade 10	5	3	12	20
	Grade 11	12	17	10	39
	Grade 12	23	28	15	66
<b>I am afraid to be alone in the house</b>					
	Grade 9	19	2	0	21
	Grade 10	14	5	1	20
	Grade 11	31	4	4	39
	Grade 12	51	15	0	66
<b>I worry about what is going to happen in the future</b>					
	Grade 9	10	7	4	21
	Grade 10	1	10	9	20
	Grade 11	7	21	11	39
	Grade 12	10	38	18	66
<b>I worry about things that have already happened</b>					
	Grade 9	12	5	4	21
	Grade 10	6	8	6	20
	Grade 11	12	18	9	39
	Grade 12	34	27	5	66

Similarly, a one-way ANOVA and multivariate test comparing grade to questions found 8 of 41 questions to vary significantly (see Tables 4 and 5).

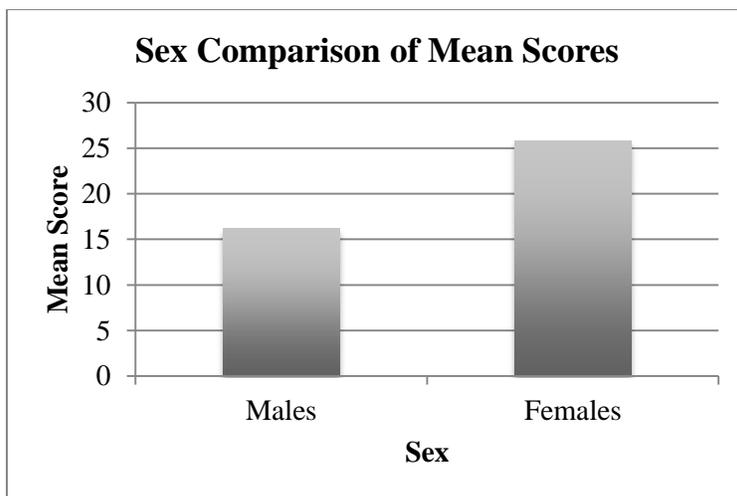
Table 4 *One-way ANOVA between groups, Anxiety Survey Items by Grade*

<b>Survey Question</b>	<b>Sig.</b>
<b>When I feel frightened, it is hard to breathe</b>	.037
<b>I worry about being as good as other kids</b>	.025
<b>I worry about things working out for me</b>	.051
<b>When I get frightened, I sweat a lot</b>	.000
<b>I am a worrier</b>	.008
<b>People tell me that I worry too much</b>	.027
<b>I worry about what is going to happen in the future</b>	.014
<b>I worry about things that have already happened</b>	.021

Table 5 *General Linear Model, Multivariate Test, Grade by Anxiety Survey Items*

<b>Survey Question</b>	<b>Sig.</b>
<b>When I feel frightened, it is hard to breathe</b>	.037
<b>I worry about being as good as other kids</b>	.025
<b>I worry about things working out for me</b>	.051
<b>When I get frightened, I sweat a lot</b>	.000
<b>I am a worrier</b>	.008
<b>People tell me that I worry too much</b>	.027
<b>I worry about what is going to happen in the future</b>	.014
<b>I worry about things that have already happened</b>	.021

The third research question was aimed at determining if there was a difference between males and females and their experience with anxiety. Descriptive statistics showed males scores to range from 1 to 61 with a mean of 16.19 (sd=12.66). Female's scores ranged from 1 to 59 with a mean of 25.82 (sd=13.74) (see Figure 2). This data revealed that females experience higher mean scores for anxiety.

Figure 2 *Comparison of Mean Scores by Sex*

A crosstabs analysis done in SPSS showed 20 survey items to be significant when comparing responses by sex (see Table 6). Likewise, a multivariate test found 23

significant survey questions when comparing responses by sex. This data revealed that males and females experience anxiety differently when it is related to any of the 20 significant survey items. Females scored higher for each one of the significant questions.

Table 6 *Crosstabs Chi-Square Tests Analysis for Sex by Anxiety Survey Items*

<b>Survey Question</b>	<b>Pearson Chi Square</b>	<b>p-Value</b>	<b>Cramers-v</b>
<b>When I get frightened, it is hard to breathe</b>	11.58	.003	.28
<b>I worry about other people liking me</b>	11.94	.003	.29
<b>When I get frightened, I feel like passing out</b>	10.71	.005	.27
<b>I feel nervous with people I don't know well</b>	8.07	.018	.24
<b>I worry about being as good as other kids</b>	9.57	.008	.27
<b>I have nightmares about something bad happening to my parents</b>	6.18	.045	.21
<b>When I get frightened, my heart beats fast</b>	8.76	.013	.25
<b>I get shaky</b>	12.14	.002	.29
<b>I have nightmares about something bad happening to me</b>	6.20	.045	.21
<b>I worry about things working out for me</b>	8.61	.013	.24
<b>I am a worrier</b>	16.79	.000	.34
<b>I am afraid to be alone in the house</b>	17.67	.000	.35
<b>People tell me that I worry too much</b>	23.82	.000	.40
<b>I am afraid of having anxiety (or panic) attacks</b>	11.07	.004	.28
<b>I worry that something bad might happen to my parents</b>	10.19	.006	.26
<b>I feel shy with people I don't know well</b>	6.33	.042	.21
<b>I worry about what is going to happen in the future</b>	14.65	.001	.32
<b>When I get frightened, I feel like throwing up</b>	13.86	.001	.31
<b>I worry about how well I do things</b>	13.45	.001	.30
<b>I worry about things that have already happened</b>	13.19	.001	.30

The final research question explored the variation in type of anxiety. Descriptive statistics were used to compare the number of students who fit criteria for each type of

anxiety by grade levels and sex (see Table 7 and 8; Figures 3 and 4). This data revealed that more students in grade 12 met criteria for an anxiety disorder than students in other grades and females met criteria for an anxiety disorder more often than males, regardless of grade. Additionally, panic disorder, generalized anxiety disorder, and social anxiety disorder were more prevalent than the other subscale items.

Table 7 *Subscale Responses for scores 25 and above*

<b>Grade</b>	<b>Males</b>	<b>Females</b>
<b>9</b>	2	4
<b>10</b>	0	12
<b>11</b>	4	10
<b>12</b>	4	16
<b>Totals</b>	10	42

Table 8 *Subscale Responses for scores 30 and above*

	<b>Grade 9</b>		<b>Grade 10</b>		<b>Grade 11</b>		<b>Grade 12</b>	
	Male	Female	Male	Female	Male	Female	Male	Female
<b>Total Number of students who scored 30+</b>	1	3	0	10	4	9	4	11
<b>Panic Disorder</b>	0	2	0	8	3	7	4	9
<b>Generalized Anxiety Disorder</b>	0	3	0	9	3	8	3	8
<b>Separation Anxiety</b>	1	1	0	5	2	3	1	7
<b>Social Anxiety Disorder</b>	1	2	0	5	4	7	3	7
<b>Significant School Avoidance</b>	1	2	0	4	2	7	2	6

Figure 3 *Comparison of Anxiety Type by Grade*

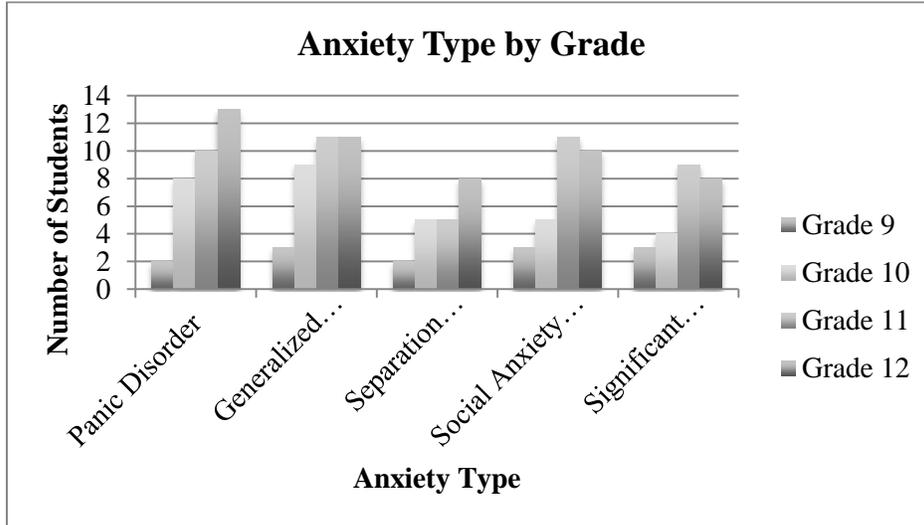
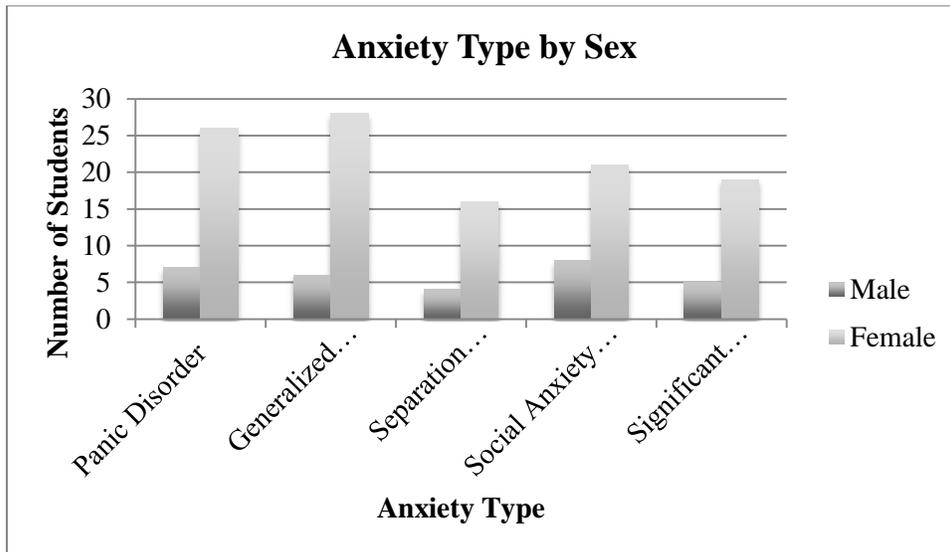


Figure 4 *Comparison of Anxiety Type by Sex*



*Notes.* Anxiety type is compared by number of students who fit criteria (scored 30+), not mean scores.

The subscales on the survey were analyzed with inferential statistics. A one-way ANOVA revealed a significant difference between grade levels for generalized anxiety disorder, panic disorder, and significant school avoidance (see Table 9).

Table 9 *One-way ANOVA between groups, Anxiety Survey Subscale Items by Grade*

Subscale	Sig.	Turkey HSD sig.	
		Grade 9-10	Grade 10-12
<b>Generalized Anxiety Disorder</b>	.011	.013	.016
<b>Panic Disorder</b>	.023	.015	
<b>Significant School Avoidance</b>	.041		

### Discussion

Adolescents with anxiety can face challenges socially, academically, and emotionally (Costello, Copeland, & Angold, 2011; Thompson et al., 2013). Anxiety can persist into adulthood when left untreated (Lothmann et al., 2011). Adolescents often experience anxiety for a variety of reasons including, transitions, life pressures, and maturation (De Wit et al., 2011; Grills-Taquechel et al., 2010; Marks et al., 2010; Moksnes & Espnes, 2011). Within schools, students are in a unique position to receive support and learn to manage anxiety. Unfortunately, adolescents often do not recognize anxiety or seek help and their struggles go unnoticed, leading to further problems that can become life long (Grills-Taquechel et al., 2010).

Many studies explore adolescent anxiety in relation to numerous other topics such as the role of school, comorbidity, development, and family interaction (Bogels et al., 2003; Broeren & Muris, 2009; Essau, 2003; Pereira et al., 2014; Shaunessy et al., 2011; Thompson et al., 2013). Existing research demonstrates that anxiety can be a common and serious issue for adolescents, especially when left untreated (Bogels et al., 2003; Lothmann et al., 2011; Miller, Laye-Gindhu, Bennett, Liu, Gold, March, Olson, & Waechter, 2011). Transitions and the idea that they can lead to anxiety are a key factor in existing research (Moksnes & Espnes, 2011). This research mainly explores major

transitions such as moving from middle to high school, or childhood to adolescence, and overlooks the specific differences between high school students and grade level.

The main purpose of this quantitative study was to determine the overall prevalence of student anxiety within a typical high school and the differences in anxiety between grade levels. In addition, the differences between sex and type of anxiety were considered. The researchers intention was to determine what level of support and type of intervention would be most beneficial for students dealing with anxiety.

### **Overall Prevalence of Anxiety**

The Screen for Childhood Anxiety Related Emotional Disorders (SCARED) was used to measure student's level of anxiety. Using 41 questions students rated their experiences with different anxiety provoking situations. Overall, students in grades 9-12 average scores were just below the level considered to indicate the presence of an anxiety disorder. Less than half of the students surveyed scored high enough on the survey to meet criteria for an anxiety disorder. Although less than half of the students scored a 25 or higher to fit the criteria for an anxiety disorder, 52 of the total 146 or approximately 36% of students did. This number is much higher than national averages, which consider 8-12% of children meeting some criteria for an anxiety disorder (Cristea et al., 2008). This suggests there is a significant portion of students that could potentially be diagnosed with an anxiety disorder. Of the 52 who experience problematic levels of anxiety 42 or 81% scored high enough to potentially fit criteria for a more specific type of anxiety. This indicates that there is a significant number of students experiencing anxiety and the majority of those have fairly high levels of anxiety according to the SCARED.

Similar to existing research, these findings suggest adolescents are dealing with a fair amount of anxiety. Specific causes of anxiety were not explored in the present study. However, given the age group and topics discussed by existing literature, it would appear that the issues adolescents face such as, school success, self esteem, life pressures, transitions, and social situations could be related to their anxiety (Bostick & Anderson, 2009; Broeren & Muris, 2009; De Wit et al., 2011; Moksnes & Espnes, 2011; Thompson et al., 2013).

### **Grade Level Differences**

The next research question explores the differences in anxiety level between grades. Data revealed that students in grade 10 appear to experience the most anxiety. However, there were the least number of tenth grade participants, and no tenth grade males took the survey. This higher level of anxiety could be explained by the idea that as freshman transition into sophomores they are expected to become more independent. This independence could be perceived as less support, which can be connected to lower self-esteem. In turn, lower self-esteem is related to increases in anxiety (De Wit et al., 2011).

Students in grades 11 and 12 had mean scores just below the level that distinguishes more severe anxiety. This indicates that there is a fair amount of juniors and seniors who may be experiencing problematic anxiety. Perhaps juniors and seniors anxiety remains close to the level of disorder due to developmental, school, and social pressures, but levels out as compared to the differences between freshman and sophomores because they are more mature, have more control over themselves, and are beginning to focus on preparing for college and adult life (Broeren & Muris, 2009; Leikanger et al., 2012; Moksnes & Espnes, 2012; Thompson et al., 2013; Von Der Embse

et al., 2013). This may also be related to the idea that seniors are focused on the next phase and do not see high school as a concern anymore. Current results also conflict with some existing research which states that anxiety levels are likely to increase as students adapt more behaviors that can be linked with anxiety and focus more on the expectations and standards they will face as college students (De Wit et al., 2011; Shaunessy et al., 2011).

It appears that ninth graders have the least amount of anxiety, perhaps because freshman are the youngest and have yet to gain much self-awareness. Freshman may also not experience as much school stress or pressure, as adolescents do as they get older, because it is their first year and they have not connected their performance in school to life success (Thompson et al., 2013). Existing research suggests that as adolescents age, their cognitive abilities increase, allowing them to link their experiences to anxiety and become fearful of having anxiety (Muris et al., 2010). Freshman could be reporting less anxiety because their cognitive abilities are not as developed.

In addition to overall scores, five survey questions were found to vary significantly by grade level by looking at the crosstabs, ANOVA, and general linear model results. These questions help distinguish what the differences in type of anxiety are between the grades. Responses to the first significant question, “I worry about being as good as other kids”, found that juniors and seniors have significantly lower scores than freshman and sophomores. This may be due to the fact that as adolescents age they find their own identity, self-worth, and confidence.

The next question found to vary significantly is “when I get frightened, I sweat a lot”. The majority of ninth grade responses indicate that this is not an issue, while 10<sup>th</sup>,

11<sup>th</sup>, and 12<sup>th</sup> appear to experience this more. Again, this may show that 9<sup>th</sup> graders are not as self aware, or perhaps are not willing to admit to something that could be seen as embarrassing like being sweaty.

Another significant question is “I am a worrier”. The majority of 9<sup>th</sup> graders indicated that they are not worriers, while the majority of 10<sup>th</sup> consider themselves to be worriers. Grade 11 and 12 appear to level out with fairly similar scores across the rating levels. This may indicate that older students have a better sense of themselves or do not think in extremes, as younger students seem to do. This may also mean that as students age their worries change and become more prominent, as existing research suggests (De Wit et al., 2011; Grills-Taquechel et al., 2010; Moksnes & Espnes, 2011).

Similarly, this idea is demonstrated with the question “I worry about what is going to happen in the future”. Freshman responses reveal that they are not concerned with the future, perhaps because they see the future as so far away. While sophomores had the majority of students concerned about the future, possibly because they are no longer the youngest and have learned how their actions are impacting success. Juniors and seniors seem to be more realistic with responses across the board. The majority of upperclassmen were somewhat concerned about the future. This may be due to the fact that they are able to plan for the future and in positions to control or decide what steps they take after high school.

The final question, “I worry about things that have already happened”, had interesting results. Over half of 9<sup>th</sup> and 12<sup>th</sup> graders did not report being worried about the past. This may indicate that 9<sup>th</sup> graders are looking forward to a fresh start in high school and 12<sup>th</sup> graders are looking to graduation and the ability to move on from things that

have happened during high school. Sophomores and juniors appeared to align on this question with the majority being worried about the past to some extent. These students are in the middle of their high school career and may be focused on how the past has or will affect them going forward.

### **Sex Differences**

Though looking at the difference in reported anxiety between males and females was not the main focus of this study, the results add to the explanation of high school student's anxiety. Overall, the results were similar to those found in existing research (Leikanger et al., 2012; Keller & Rowley, 1962). Females appear to experience anxiety more than males. Females have been shown to have lower self esteem, which has been linked to increases in anxiety (Moksnes & Espnes, 2012). Interestingly, results reveal that males had a higher range of scores, even though they had a lower mean score, less students with scores 25 or higher, and less who met the criteria for a specific type of anxiety. This suggests that males may experience more extreme anxiety when they have it, but have a lower overall prevalence than females. Approximately 20% more females participated in the study, which could indicate that males are less willing to share about their experiences with anxiety. A crosstabs analysis revealed 20 questions that varied significantly between males and females. For each one of the 20 significant questions there were a higher percentage of females that found the item to be somewhat or very true. This is similar to earlier findings in that males may be less willing to share when they experience anxiety.

### **Differences in Type of Anxiety**

The SCARED scoring sheet aligns each question with one of five types of anxiety (see Appendix B). Students with scores of 30 or above met criteria to fit the subscales or separate types of anxiety on the survey. Participant's scores could fit more than one type of anxiety. Of the 146 participants, 42 scores were broken down into the separate types of anxiety. Overall, generalized anxiety disorder (GAD), panic disorder, and social anxiety disorder were experienced most often. This study indicates that students who fit criteria for an anxiety disorder most often fit criteria for GAD, panic disorder, and social anxiety disorder. Existing research has found that social anxiety disorders are one of the most stable across ages, however GAD and panic disorder were not found to be stable across age groups (Carbello et al., 2010). This may suggest that students in the current study will not fit the criteria for GAD or panic disorder as they age.

Students appear to have less trouble with separation anxiety and school avoidance. This could be due to the fact that students in high school are working toward being autonomous, more mature, and responsible. Results do align with the idea that students experience anxiety in social situations, perhaps because adolescence is a time of exploration where students struggle with defining themselves and working through peer pressure.

Among grade level, significant differences with the type of anxiety experienced were found by using an ANOVA. Significant school avoidance, panic disorder, and GAD were found to vary significantly depending on what grade a student was in. Data reveals students in higher grades experience GAD, panic disorder, and significant school avoidance more often than students in ninth grade. This again could be related to the idea

that freshman appear to be less self-aware or worried about life in general. Ninth graders are also new to high school and may not have as much of an unpleasant view of school because it is still fresh and new.

### **Limitations**

The present research assists in gaining insight into the prevalence and nature of high school student's experiences with anxiety. However, there were several limitations to this study. The first limitation is related to the sample of students. Only 146 students from one high school participated in the study. All students enrolled in general education social studies classes had the option to participate; therefore there were unequal samples among the groups for grade level and sex. Grade 10 for example, had zero males complete the survey. These limitations impact external validity and make it difficult to generalize the findings to a larger population.

The surveys were administered during classes, students were only given one opportunity to bring back permission forms and complete the survey. Students were in a setting that could have caused anxiety, thus impacting how they would respond to questions on the survey. Students were given incentive to participate, which may have encouraged them to complete the survey when they were not concerned with the accurate results of the study. This research took place toward the end of the school year, when students are often studying for final exams or enjoying less classwork, which could play into how students answered survey items. This study was introduced as a survey measuring experiences with stress and anxiety. Students may have responded differently due to the fact that anxiety and mental health disorders often have negative stigmas

attached to them. These limitations impacted internal validity and the way in which students may have responded to questions.

### **Recommendations for Future Research**

Based upon the results of the study, there are numerous recommendations for future research. To improve the external validity, the sample of students could be more representative of the general population of adolescents. Making more purposeful participant selections and creating a neutral environment for participants to complete the survey could help to obtain more reliable results.

It may be beneficial to investigate student's anxiety at multiple points throughout the year, or over time. Measuring anxiety at the beginning, middle, and end of each school year to control for the effects the time of year plays on responses, could improve the reliability and validity of results. Similarly, it could be helpful to study one group of students throughout their high school career, obtaining a more accurate picture of how anxiety changes from year to year for each individual.

In addition to determining the prevalence of student anxiety, it may be beneficial to explore what is causing their anxiety. This study did examine the types of anxiety disorders students may fit criteria for, but did not go into detail about the causes of anxiety. Understanding the underlying causes or root problems, not just surface level, may help in focusing intervention efforts.

The goal of this study was to determine the prevalence of anxiety as a way to focus intervention planning efforts. It may be interesting to measure anxiety levels, add in an intervention, and then remeasure anxiety levels in future years to determine if there are changes in anxiety. It could also be intriguing to explore the differences between type of

school or school environment and the anxiety differences between each grade level.

Another idea for future research could be to explore the differences in how anxiety is impacting day to day life for students in each grade, not just looking at general levels, but how that level of anxiety affects a student at a particular point in time.

### **Recommendations for Interventions**

Overall, it is important for school counselors to maintain awareness of anxiety and its prevalence among the students they work with. In addition, it would be beneficial for counselors to understand the impact anxiety has on students overall wellbeing. Any intervention that is implemented should begin early and promote wellbeing by teaching information and coping skills.

Recommendations for schools may be different depending on the population and their student's experiences with anxiety. Based on current results, it seems that providing school wide or larger group interventions may be more beneficial given the number of students affected by anxiety. Classroom presentations or school wide anxiety reduction and stress management workshops could be one way of reaching the majority of students affected.

Including information about dealing with anxiety for parents at parent nights or open houses could also be beneficial in providing more support for a large number of students. Groups and individual counseling would still be necessary and helpful for students experiencing more severe anxiety that highly impacts their overall wellbeing.

### **Conclusion**

Three major conclusions can be drawn from this study. The first is that a significant amount of adolescents experience anxiety, which could interfere with their

overall functioning and wellbeing. Results from this study reveal that high school students often suffer from anxiety. Though other studies have focused on different aspects of adolescent anxiety, such as comorbidity (Essau, 2003), self-esteem (Moksnes & Espnes, 2012), parental influence (Bogels, van Dongen, & Muris, 2003; Pereira et al., 2014), and academic influence (Shaunessy et al., 2011; Thompson et al., 2013), they all indicate that adolescents experience anxiety impacting their wellbeing. Even though every adolescent does not experience anxiety, it appears that anxiety is a concern with a large enough impact that it is worth addressing.

The second major conclusion that can be drawn from this study is that differences in anxiety do exist between students in different grade levels. Though results from this study have limitations, they suggest that students in different grades experience anxiety differently and at various levels of severity. Other studies have explored adolescent anxiety in connection to cognitive development (Broeren & Muris, 2009), transitions from middle school to high school and through major life stages (Costello, Copeland, & Angold, 2011; Grills-Taquechel et al., 2010), and stability of disorders from childhood to adulthood (Carballo et al., 2010). They do not however, examine the relationship between high school grade level and anxiety. The focus on how tumultuous transitions can be during adolescence, and how a variety of life experiences impact an adolescent's development, speak to how important it is to determine at what point they are experiencing the most anxiety.

The final main conclusion that can be made from this study is that males and females experience anxiety differently. Though this was not a main focus of this study, the results revealed that adolescent females are experiencing significantly higher levels of

anxiety than males. Existing research that has explored the differences between male and female anxiety found similar results (Leikanger, Ingul, & Larsson, 2012; Moksnes, & Espnes, 2012; Moore, 2010). Males and females, especially during adolescence, vary in many aspects of life; it is not surprising that anxiety would vary as well.

This research has not found causes, cures, or effective interventions for high school students suffering from anxiety. It has however, explained the prevalence of anxiety among a sample of high school students. This information can be helpful in determining how to move forward with further research, how to focus intervention efforts within schools, and how to raise awareness of an issue that is impacting a large number of students and their success not only in school, but in life.

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## Appendix A

**Directions:**

Below is a list of sentences that describe how people feel. Read each phrase and decide if it is “Not True or Hardly Ever True” or “Somewhat True or Sometimes True” or “Very True or Often True” for you. Then, for each sentence, fill in one circle that corresponds to the response that seems to describe you *for the last 3 months*.

	<b>0</b>	<b>1</b>	<b>2</b>
	<b>Not True or Hardly Ever True</b>	<b>Somewhat True or Sometimes True</b>	<b>Very True or Often True</b>
1. When I feel frightened, it is hard to breathe	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. I get headaches when I am at school.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. I don't like to be with people I don't know well.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. I get scared if I sleep away from home.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. I worry about other people liking me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. When I get frightened, I feel like passing out.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. I am nervous.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. I follow my mother or father wherever they go.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. People tell me that I look nervous.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. I feel nervous with people I don't know well.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. I get stomachaches at school.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. When I get frightened, I feel like I am going crazy.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. I worry about sleeping alone.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. I worry about being as good as other kids.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15. When I get frightened, I feel like things are not real.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16. I have nightmares about something bad happening to my parents.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17. I worry about going to school.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18. When I get frightened, my heart beats fast.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19. I get shaky.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20. I have nightmares about something bad happening to me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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	<b>0</b> <b>Not True or Hardly Ever True</b>	<b>1</b> <b>Somewhat True or Sometimes True</b>	<b>2</b> <b>Very True or Often True</b>
21. I worry about things working out for me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22. When I get frightened, I sweat a lot.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
23. I am a worrier.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
24. I get really frightened for no reason at all.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
25. I am afraid to be alone in the house.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
26. It is hard for me to talk with people I don't know well.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
27. When I get frightened, I feel like I am choking.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
28. People tell me that I worry too much.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
29. I don't like to be away from my family.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
30. I am afraid of having anxiety (or panic) attacks.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
31. I worry that something bad might happen to my parents.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
32. I feel shy with people I don't know well.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
33. I worry about what is going to happen in the future.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
34. When I get frightened, I feel like throwing up.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
35. I worry about how well I do things.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
36. I am scared to go to school.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
37. I worry about things that have already happened.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
38. When I get frightened, I feel dizzy.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
39. I feel nervous when I am with other children or adults and I have to do something while they watch me (for example: read aloud, speak, play a game, play a sport).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
40. I feel nervous when I am going to parties, dances, or any place where there will be people that I don't know well.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
41. I am shy.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Appendix B

**Screen for Child Anxiety Related Disorders (SCARED) CHILD Version****Directions:**

Below is a list of sentences that describe how people feel. Read each phrase and decide if it is “Not True or Hardly Ever True” or “Somewhat True or Sometimes True” or “Very True or Often True” for you. Then, for each sentence, fill in one circle that corresponds to the response that seems to describe you *for the last 3 months*.

	<b>0</b>	<b>1</b>	<b>2</b>	
	<b>Not True or Hardly Ever True</b>	<b>Somewhat True or Sometimes True</b>	<b>Very True or Often True</b>	
1. When I feel frightened, it is hard to breathe	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<b>PN</b>
2. I get headaches when I am at school.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<b>SH</b>
3. I don't like to be with people I don't know well.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<b>SC</b>
4. I get scared if I sleep away from home.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<b>SP</b>
5. I worry about other people liking me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<b>GD</b>
6. When I get frightened, I feel like passing out.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<b>PN</b>
7. I am nervous.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<b>GD</b>
8. I follow my mother or father wherever they go.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<b>SP</b>
9. People tell me that I look nervous.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<b>PN</b>
10. I feel nervous with people I don't know well.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<b>SC</b>
11. I get stomachaches at school.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<b>SH</b>
12. When I get frightened, I feel like I am going crazy.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<b>PN</b>
13. I worry about sleeping alone.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<b>SP</b>
14. I worry about being as good as other kids.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<b>GD</b>
15. When I get frightened, I feel like things are not real.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<b>PN</b>
16. I have nightmares about something bad happening to my parents.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<b>SP</b>
17. I worry about going to school.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<b>SH</b>
18. When I get frightened, my heart beats fast.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<b>PN</b>
19. I get shaky.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<b>PN</b>
20. I have nightmares about something bad happening to me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<b>SP</b>

**Screen for Child Anxiety Related Disorders (SCARED) CHILD Version**

	<b>0</b> Not True or Hardly Ever True	<b>1</b> Somewhat True or Sometimes True	<b>2</b> Very True or Often True	
21. I worry about things working out for me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<b>GD</b>
22. When I get frightened, I sweat a lot.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<b>PN</b>
23. I am a worrier.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<b>GD</b>
24. I get really frightened for no reason at all.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<b>PN</b>
25. I am afraid to be alone in the house.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<b>SP</b>
26. It is hard for me to talk with people I don't know well.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<b>SC</b>
27. When I get frightened, I feel like I am choking.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<b>PN</b>
28. People tell me that I worry too much.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<b>GD</b>
29. I don't like to be away from my family.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<b>SP</b>
30. I am afraid of having anxiety (or panic) attacks.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<b>PN</b>
31. I worry that something bad might happen to my parents.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<b>SP</b>
32. I feel shy with people I don't know well.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<b>SC</b>
33. I worry about what is going to happen in the future.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<b>GD</b>
34. When I get frightened, I feel like throwing up.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<b>PN</b>
35. I worry about how well I do things.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<b>GD</b>
36. I am scared to go to school.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<b>SH</b>
37. I worry about things that have already happened.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<b>GD</b>
38. When I get frightened, I feel dizzy.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<b>PN</b>
39. I feel nervous when I am with other children or adults and I have to do something while they watch me (for example: read aloud, speak, play a game, play a sport).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<b>SC</b>
40. I feel nervous when I am going to parties, dances, or any place where there will be people that I don't know well.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<b>SC</b>
41. I am shy.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<b>SC</b>

**SCORING:**

A total score of  $\geq 25$  may indicate the presence of an **Anxiety Disorder**. Sores higher than 30 are more specific. **TOTAL =**

A score of **7** for items 1, 6, 9, 12, 15, 18, 19, 22, 24, 27, 30, 34, 38 may indicate **Panic Disorder or Significant Somatic Symptoms**. **PN=**

A score of **9** for items 5, 7, 14, 21, 23, 28, 33, 35, 37 may indicate **Generalized Anxiety Disorder**. **GD=**

A score of **5** for items 4, 8, 13, 16, 20, 25, 29, 31 may indicate **Separation Anxiety SOC.**  
**SP=**

A score of **8** for items 3, 10, 26, 32, 39, 40, 41 may indicate **Social Anxiety Disorder.**  
**SC=**

A score of **3** for items 2, 11, 17, 36 may indicate **Significant School Avoidance. SH=**