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Children At-Risk for Anxiety: Their Self-Esteem, Somatic Symptoms, and Perceptions of Parental Support

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Running head: FACTORS IN CHILDREN AT RISK FOR ANXIETY

Children At-Risk for Anxiety: Their Self-Esteem, Somatic Symptoms, and Perceptions of
Parental Support

Honors Thesis Presented by

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To the Department of Psychology

For partial fulfillment of the requirements for a Bachelor of Arts Degree

Connecticut College

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Abstract

The present study examined children at risk for anxiety, analyzing their symptoms, self-esteem, and their perception of parental behavior. Data were collected as part of a large anxiety prevention study conducted at the University of Rhode Island. Elementary and middle school children who were identified as at risk for anxiety through an initial assessment were administered a battery of questionnaires, which included measures for anxiety, self-esteem, somatic symptoms, and perceptions of parental behavior. The primary hypothesis was that children at risk for anxiety would demonstrate low levels of self-esteem, especially if they concurrently displayed somatic symptoms and perceived their parental support as low. Moderating effects were not found in the current study, but there was a significant relationship between anxiety and self-esteem, across a broad range of anxiety symptoms and self-esteem domains. Perceived parental behavior was also related to anxiety. Specifically, higher parental control was related to higher anxiety. Perceived parental behavior was also related to self-esteem. Many differences in parent and child perspectives were noted. These findings may have implications in the future development of prevention and intervention techniques for children at risk for anxiety.

Introduction

Anxiety has been recognized as one of the most common psychological problems affecting children (Lewinsohn, Gotlib, Lewinsohn, Steeley, & Allen, 1998; Wenar & Kerig, 2000). Anxiety disorders in children have a prevalence rate ranging from 12% to 17.3% (Vasey & Ollendick, 2000). Yet, there is consistently a call for more research on the topic of childhood anxiety. Much of the empirical evidence upon which children are diagnosed and treated is rooted in research done with adults (Hudson, Kendall, Coles, Robin, & Webb, 2002). This emphasis is problematic because children should never be categorized as “little” adults (Kendall, 1994). Researchers like Kendall have emphasized the concept of a developmental dimension to children’s disorders in order to stress the differences between adults and children in terms of diagnoses and treatments. The constant development children go through not only influences the manifestation of their disorder’s but it also affects the types of treatment that might be most beneficial (Mash & Barkley, 2003; Vasey & Ollendick, 2000).

A great deal of the current literature on childhood anxiety is focused on treatment, yet there is still much to be learned about the development of childhood anxiety and the aspects of anxiety that may be unique to children. Studies are needed that focus on the disorder itself. The more information available on the nature of childhood anxiety, such as the effects it can have on a child’s quality of life, and the interactions that can occur between anxiety and a multitude of developmental factors, the greater the likelihood that general understanding will improve and more suitable treatment opportunities will emerge. In addition, the more we understand the precursors to anxiety and the correlates of sub-clinical anxiety in children, the better we will be able to intervene and prevent anxiety.

The purpose of this study is to further not only our understanding of childhood anxiety but of the relationship between anxious children at risk for anxiety disorders and other important developmental factors such as perception of parental behavior. The current research explores the specific manifestations of childhood anxiety and anxiety risk in children. The focus of the investigation was on somatic symptoms, and the relationship between sub-clinical anxiety and other important aspects of childhood, including parenting and the development of self-esteem. Specifically, the study examined how the three variables of somatic symptoms, self-esteem, and perceived parental behavior can exacerbate a child's disorder when he/she is at risk for anxiety. To lay the groundwork for this investigation the following introduction provides a general overview of anxiety, followed by a more detailed examination of childhood anxiety and anxiety risks. The discussion of anxiety will be followed by an examination of the interacting variables of self-esteem and perceived parental behavior, and then by the specific hypotheses for the current study.

General Background on Anxiety: Causes and Manifestations

Anxiety can be a natural and useful emotion. It is often linked to the idea of a “fight or flight” response. Normal levels of anxiety allow a person to respond to a potentially harmful situation and be prepared to essentially “fight” the situation or take “flight” (Westen, 2001). Anxiety can be viewed as necessary to survival because heightened anxiety creates elevated awareness of one's surroundings. Moderate levels of anxiety have actually been found to enhance performance (Albano, Causey, & Carter, 2001). However, anxiety exists on a spectrum. Clinical anxiety is a state of mind that is defined by a negative thought process that leads to intense apprehension about the future (Albano et al., 2001). On one end, anxiety is beneficial to survival. On the other end, anxiety can consume and change a person's life.

Many psychological schools of thought have presented theories on the etiology of anxiety. The three main foci are psychoanalytic theories, behavioral theories, and biological theories. Psychoanalytic theorists generally believe that experiences in early childhood lead to the development of neuroses, including anxiety disorders. Overprotective, neglectful, or confusing childhoods can lead to a break down in defense mechanisms and the consequences are anxiety. Psychoanalytic theorists focus on conflict as the root of psychological disorders. They offer the theory that anxiety has symbolic meaning. They believe that the anxiety provoking situation is not the true cause of the anxiety but something more unconscious (Wenar & Kerig, 2000). These fears are then projected onto various objects and/or situations. Psychoanalytic theorist Karen Horney stressed that negative parental attitudes could create “basic anxiety” in a child; leaving a child to feel alone, helpless, and fearful of a hostile world (Veeraraghavan & Singh, 2002, p.26). To psychoanalytic theorists, anxiety is a manifestation of unconscious emotions and internal conflicts.

Behavioral theorists believe that all behaviors are learned and therefore can be unlearned. They suggest that anxiety is a learned behavior acquired through modeling and conditioning. Normative anxiety is beneficial because it allows someone to react to a realistic threat. When anxiety crosses the threshold from helpful to inhibiting, it becomes a disorder. Behavioral theorists believe that the line between at risk and disorder is crossed when anxious people are reinforced for their behavior. For example, people may become anxious when they need to leave their house. As their anxiety grows they find more ways to avoid having to leave their residence. This active avoidance not only reinforces but exacerbates the anxiety because it offers temporary relief while not confronting the anxiety, allowing it to grow. Those who suffer from anxiety have learned the technique of avoidance as well as

having learned incorrect and inaccurate perceptions of stimuli (Veeraraghavan & Singh, 2002). Inaccurate perceptions can come from both conditioning and modeling. Children who observe a parent getting very upset about a spider may internalize that fear and adapt it as their own. However, a parent could also condition a child to be afraid of a spider by conditioning the child to associate a spider with a frightening parental attack on household surfaces with a broom. Behavioral theorists also stress the importance of reinforcement in heightening an anxious reaction. Any reaction that is done to alleviate anxiety immediately becomes a reinforcer. If someone who has social anxiety is afraid of meeting new people he or she will simply withdraw, which alleviates his or her anxiety. If someone is afraid of spiders he or she will avoid any locations where the individual believes spiders may possibly exist. These avoidance techniques may appear harmless or even amusing for those who do not suffer from anxiety. However, for those who spend a great deal of time and energy trying to avoid anxiety, avoiding can reinforce the anxiety, leading to greater difficulty in living.

The biological aspect of anxiety is a more recent addition to the theories of the etiology of anxiety. A biological example is that some people with anxiety manifest their symptoms somatically in physical reactions such as heart palpitations, headaches, nausea, or muscle strain. Biology may play a role not only in somatic anxiety symptoms but as a component to inducing anxiety as well. Biological theories stress the important roles played by the peripheral and central nervous systems in the development of anxiety. When norepinephrine, serotonin, and gamma aminobutyric acid (GABA) become deregulated, sensations of anxiety increase and can become uncontrollable (Comer, 2004). Theorists focused on the biological aspects also suggest the importance of genetic inheritance and risk

factors (Veeraraghavan & Singh, 2002). Many of the theories involving genetic heritage rely on data from monozygotic and dizygotic twin studies. Craske (2003) discusses the importance of a serotonin transporter gene. Serotonin is a neurotransmitter concentrated in the amygdala. The amygdala has been found to be important in the role of attention and arousal to potentially dangerous stimuli (Rosen & Schulkin, 1998) and therefore directly influences sensations of anxiety.

The development of anxiolytic drugs has helped researchers establish the types of metabolic functioning that influences the development of anxiety. Anxiolytic drugs target the limbic system, more specifically, the noradrenergic and serotonergic impulses to the septo-hippocampal system (Hollandsworth, 1990). Impulses to the septohippocampal system create hypervigilance in an anxious person. These impulses essentially “mark” what cues in the environment may be a threat. A reduction of the impulses reduces anxiety because a person reduces the number of items he or she deems important to monitor. Hollandsworth (1990) explained the idea simply as a reduction of “stimuli tagged as important,” thus reducing the hypervigilance and the activation of the “fight or flight” response. Noradrenergic activity sent to the hypothalamus has been associated with the activation of the “fight or flight” response (Hollandsworth, 1990). Through the observation of these biological influences on anxiety, more has been learned about the various mechanisms that affect a person’s functioning and behavior.

Regardless of the school of thought used to interpret the symptoms of anxiety, theorists believe that anxiety manifests in adults in four different ways; physiologically, cognitively, emotionally, and behaviorally. Physiologically, a person can begin to feel a physical reaction to a perceived threat. This reaction can take the form of physical sensations

such as muscle tension, nausea, headaches, heart palpitations, or sweating. The physical reactions stem from the brain triggering the sympathetic nervous system in reaction to a perceived threat (Mash & Barkley, 2003). Activation of the sympathetic nervous system leads to the release of adrenalin and noradrenalin. Heart rate and breathing rate increases which can lead to feelings of breathlessness, dizziness, or chest pains. Muscles tense up and a decrease in digestive system activity leads to the feelings of a “knot in the stomach.” Anxiety can become an even greater problem when through cognitive processing a person misinterprets the physical reaction and exacerbates the anxious sensation. For example, someone with agoraphobia begins to feel anxious when confronted with the idea of leaving his or her house. The person begins to sweat, shake, and feel nauseous. These physical symptoms increase agoraphobics’ discomfort, which increases their desire to alleviate their anxiety by not leaving their residence. Once they choose not to leave they begin to calm down and their symptoms disperse. The alleviation of physical symptoms is a powerful reinforcement to reward avoidance behavior. Cognition can play a strong role in the interpretation of physical symptoms, but it also has a lead role of its own.

Cognitively, people prone to anxiety constantly see threats everywhere around them. They tend to have an information processing bias that affects how they interpret the world around them. Specifically, people with anxiety are prone to catastrophizing (Comer, 2004). Their beliefs, cognitions, and interpretations are all influenced by a heightened state of anxiety. These cognitions involve not only the misinterpretation of the body’s physical reaction and misinterpreting signs of surroundings and events, but the misinterpretation of the likelihood of an extreme negative outcome. In following the previous example, people who are agoraphobic begin to think about all the reasons why they cannot or should not leave

their houses. They ruminate on the issue and cannot think of anything else, they imagine the worst possible scenario. There is some evidence that people with anxiety have a heightened hypervigilance to threat that leaves them constantly on the lookout for new threats (Mash & Barkley, 2003).

In order to study the possibility of an attention bias in a clinically anxious sample, MacLeod, Matthews, and Tata (1986) conducted a study using a response to stimuli technique. Thirty-two participants were recruited, 16 with generalized anxiety and 16 volunteers from an introductory psychology course. Participants viewed a screen that flashed 2 words, one at the top of the screen and one at the bottom. They were asked to read aloud the top word. Participants were simultaneously asked to press a button if a certain stimulus came onto the screen (visual dot probe). There were 48 threat words, 24 aimed towards physical threat (e.g., injury, disease, hearse) and 24 aimed towards social threat (e.g., embarrassed, scorned, incompetent), which were dispersed between neutral words. Results showed that those with anxiety disorders were significantly more likely to be distracted by threat words than the non-anxious sample. Clinically anxious participants spent more time looking at the threat word as measured by how much longer it took them to notice the dot stimulus and press the button. Not only did non-anxious participants not focus on the threat words, they tended to consistently shift their attention away from the word. MacLeod et al.'s (1986) findings suggest that highly anxious people differ from a normative sample in their cognitive systems. Whereas non-anxious people inhibit their focus on very low threatening stimuli, anxious people focus and dwell on threatening stimuli, even if the threat is confined to a word. Cognition is however only one aspect that can perpetuate anxious states.

In addition to the physiological and cognitive components to anxiety is the emotional and behavioral state of someone with an anxiety disorder. The two are closely linked together because a person's emotional state is often visibly reflected in his or her behavior, whereas physiological and cognitive processes are often much more internal. The emotional component can also involve a reaction to either the situation itself or a way to dislodge the self from the situation. The positive aspects of anxiety arise when people find themselves in situations in which they need to react quickly, in essence either fight or escape. Those with an anxiety disorder consistently overreact to situations and the positive aspects of anxiety diminish. Their behavior reflects their uncomfortable feelings through fidgeting, pacing, avoiding stimuli in any way possible, and essentially shutting out the world (Vasey & Ollendick, 2000). If anxious people are trying to relieve the reaction they are having to an anxiety provoking stimulus they will alter their behaviors. Behavior can be a critical symptom because it displays how a person's anxiety is manifesting into various avoidance techniques. In summary, physiological, cognitive, emotional, and behavioral symptoms of anxiety disorders can manifest in many ways and the symptoms can interlink and can cause someone at risk to cross the line into disorder.

Clinical Anxiety Disorders

Anxiety as a pathology is defined by certain characteristics. Four central themes have been identified for clinical anxiety disorders: intensity, frequency, a reaction that is beyond control and cannot be rationalized, and avoidance (Albano et al., 2001; Wenar & Kerig, 2000; Westen, 2001). The following example illustrates that although people may become anxious in various situations throughout their lives, it does not necessarily indicate they have an anxiety disorder. A person who has to give a very important presentation in front of other

people panics during public speaking and begins to feel anxious. He or she starts to sweat, his or her stomach tightens, and the individual begins to visualize the crowd laughing and pointing. As such anxious people begin to talk, their anxiety shows by them tumbling over their words and losing their thought process. The visibility of their anxiety only exacerbates the situation. This scenario is not only common; it does not meet full criteria of an anxiety disorder (American Psychiatric Association, Diagnostic and Statistical Manual of Mental Disorders IV-TR, 2000). The most common theme is intensity (Mash & Barkley, 2003); this refers to the strength of the anxiety reaction. Often the reaction is disproportional to the event. An anxiety reaction needs to be intense enough to overwhelm the senses and inhibit a person from completing otherwise routine tasks for a diagnosis of disorder (DSM-IV-TR, p. 450). Although the previous example describes someone who is feeling anxiety, normative anxiety is different from a clinical anxiety disorder.

A second reoccurring feature of anxiety disorders is the frequency of anxious reactions (Albano et al., 2001). Often the anxious reactions are reoccurring responses to everyday events that would not have an impact on the “average” person. In the previous speaker example, a person who is struggling with an anxiety disorder that affects his or her desire to speak in public would find difficulty in speaking to an audience in any situation for any reason regardless of group size, topic, or other factors. Another key theme is that the anxious reaction is beyond the voluntary control of the perceiver (Comer, 2004). The reaction is not only persistent but the person cannot logically persuade him or herself it is an overreaction. Overall the reaction is not only frequent, intense, and beyond control, it has an impact on the individual’s everyday life. The anxious reaction is also maladaptive and controls how the individual leads his or her life. A fourth key feature of anxiety is avoidance

(Vasey & Ollendick, 2000). Someone with an anxiety disorder will go through great lengths to avoid anxiety provoking situations.

To sum up the characteristics, the speaker in the previous example may have an anxiety disorder, a public speaking phobia. However, this only applies if the person's anxiety is consistent for every public speaking event, the person's reaction is intense and affects his or her performance, he or she cannot convince him or herself that they are being irrational even though the individual is cognizant of that fact, and the person begins to develop many ways to avoid ever speaking in public again. The aforementioned characteristics of frequency, intensity, awareness without control, and avoidance are indicative of anxiety disorders in both adults and children. One important difference is that children have a difficult time understanding that their anxiety is illogical. However, the other three characteristics, intensity, frequency, and avoidance, are basic tenants of an anxiety disorder in both adults and some children. The characteristics of anxiety disorders are complex; but the disorder itself is also complex because it does not necessarily manifest the same way in both adults and children.

Differences Between Adult and Childhood Anxiety

There is a great deal of overlap between adult and childhood symptoms of anxiety, which helps perpetuate the idea that criteria for diagnoses of adult disorders can be handed down and simply manipulated to diagnoses children. One of the key differences between adult symptoms and child symptoms is that adults may recognize that their anxiety is illogical whereas children will not. Children, in general, have not yet developed the cognitive abilities to fully understand both external stimuli and internal reactions. Children who are anxious are especially handicapped because they are affected by an information processing

bias (Leitenberg, Yost, & Carroll-Wilson, 1986). Children can misperceive stimuli while simultaneously they cannot comprehend their own reactions and internal feelings. There has also been a great deal of discussion around the issue of how an abnormal fear for an adult or adolescent may be a typical fear for a child (i.e., normal child fears vs. pathological fears). For example, it is not uncommon for children to be afraid of strangers, in fact they are often taught to be extremely cautious around strangers. However as people become older, they learn to interpret social cues and they in theory become less cautious around strangers. A fear of strangers is a normal child fear whereas a fear of strangers in adults is viewed more of a pathological issue. Pathological fears develop directly from normal fears (Rosen & Schulkin, 1998), and that causes difficulties when trying to determine if fears in children are normal for their age even if the fear is not a normal response for an adult.

Another very crucial concern is the facts that as children develop, both physically and cognitively, their symptoms may change but the underlying concern will still be anxiety. The age of the child can have a dramatic effect on the types of symptoms a child is likely to exhibit. For example, if a child has a separation anxiety disorder at a younger age the child will be upset when separating from his or her caregiver. Such children will be upset at anything from going to school to not sleeping at night if the caregiver is absent (DMS-IV-TR, p.122). As they grow older they will begin to have specific fears (although illogical) as to why they feel they cannot separate from their caregiver, for example, a fear of kidnapping (DSM-IV-TR, p. 122). While researchers seek to refine developmental aspects of childhood anxiety, Diagnostic and Statistical Manuals now include ways in which criteria for adult disorders can be altered in order to accommodate children affected by anxiety. Although this move is a step in the right direction, because it recognizes that children can in fact be affected

by anxiety, it is certainly not the end point. Research needs to be strengthened in the area of childhood anxiety so that criteria and disorders can be developed specific to children, not alterations from adult research data. Although there may be those who disagree, children and adults are very different, which has an influence upon not only the criteria for their disorders but also how their symptoms are manifested.

Anxiety Disorders in Childhood

Anxiety is a disorder in which the individual, whether children or adults, internalizes their suffering (Mash & Barkley, 2003). Symptoms of childhood anxiety can be similar to adult anxiety but with a few key differences. As with adults, children display physical, cognitive, emotional, and behavioral symptoms. Physically a child may react to an anxiety provoking situation by experiencing such feelings as muscle tension, nausea, headaches, an increase in heart rate or sweat, or muscle aches. Physical reactions have been attributed to a higher sympathetic arousal of the nervous system (Mash & Barkley, 2003), found in both children and adults. Anxiety disordered children are plagued with negative cognitive beliefs, perceptions, and ideas, about not only themselves but their outside surroundings as well. The emotional component refers not only to the emotional state of the anxious individuals, but how they read emotions in others. Easter, et al. (2005) found that children with anxiety disorders had a significantly more difficult time reading the emotional states on the faces of adults. This characteristic could exacerbate children's emotional states if they misinterpret the cues. They also cannot adequately control or process what they perceive to be a threatening situation often leading to the misconception that they cannot handle the situation (Veeraraghavan & Singh, 2002).

Cognitive anxiety symptoms include irrational fears and persistent worrying. In child anxiety, symptoms can also include emotional or behavioral outbursts. For example, children in what they perceive to be a highly anxious situation may throw an uncontrollable temper tantrum or begin violently crying. It is possible that when it comes to anxiety symptoms in children their emotional and behavioral symptoms are the more noticeable manifestations because they catch the attention of others. Children who are crying or throwing temper tantrums will attract more attention than the child who has a stomachache. A specific aspect of this dilemma is when children cannot understand why they are feeling anxious and therefore have difficulty verbalizing to others that they need help. This specific aspect is especially crucial for a child suffering from somatic symptoms.

The area of somatic symptoms is a particular focus in childhood anxiety research. Somatic symptoms are the physical complaints for which no organic cause is found (Puskar, Sereika & Haller, 2003). Multiple studies have emerged showing that there are a significant number of somatic reports in anxious children (Beidel, Christ, & Long, 1991; Egger, Costello, Erkanli, & Angold, 1999; Puskar et al., 2003). The most commonly believed somatic complaints in anxious children are stomachaches and headaches (Puskar et al., 2003). However, there is a wide range of possible somatic complaints including increased heart palpitations, choking sensations, chest pains, dizziness, hot flushes, visual impairment, and muscle pain (Mash & Barkley, 2003).

When reviewing the literature there appears to be a great deal of research that focuses on the somatic symptoms of children. Adults tend to be different in terms of somatic symptoms because they are more cognitively advanced. This allows adults to rationalize, or at least comprehend, what they are feeling and how to cope and/or alleviate their physical

somatic symptoms. Perhaps children are more of a focus during somatic symptoms and anxiety research because they often cannot understand why they are getting upset and cannot articulate the distress directly. Children reflect the manifestation of their internalizing problems through the manifestation of somatic distress. Children may also be more of a focus in regard to somatic symptoms research because it would be especially helpful in risk prevention and treatment. Researchers (Beidel et al, 1991; Egger et al, 1999; Puskar et al., 2003) have gone through great lengths to establish the connection between somatic symptoms and childhood anxiety, with conflicting evidence found in the research (addressed subsequently). Learning more about childhood somatic symptoms would add more information that could be utilized in the future.

The overlap between anxiety and somatic symptoms in children led Beidel et al. (1991) to conduct a study to determine the prevalence rate of different somatic symptoms in anxious children. They utilized a sample of participants from a previous study they had conducted examining the relationship between test anxiety and DSM-III criteria for childhood anxiety disorder. Beidel et al. (1991) examined prevalence rates to determine if there was a relationship between anxiety and somatic symptoms. They concluded that anxious children did report a significantly higher number of somatic complaints than did non-anxious children. They then compared these groups to determine the prevalence of specific somatic symptoms. Specifically, anxious children reported more somatic symptoms than did typical children in the areas of choking, flushes/chills, palpitations, fainting, shakiness, and headaches. Children with social phobia reported the most pervasive pattern of somatic reactions; 50% of the children with social phobia reported somatic symptoms. Beidel et al. (1991) suggest that although headaches and stomachaches are most frequently thought

to be associated with anxiety in children, they were not the most pervasive nor most prevalent empirically. The most frequently reported somatic complaints were heart palpitations, sweating, flushes/chills, and feeling faint. This discussion concluded with the suggestion that more awareness needs to be given to the wide variety of potential somatic symptoms that anxiety can provoke. A greater understanding could lead to earlier diagnoses and more successful screening of children at risk for anxiety disorders.

Gender differences of somatic symptoms may impact the study of anxiety and somatic symptoms in children. Multiple studies have indicated that girls tend to have a higher somatic symptom rate than do boys, a difference that continues into adulthood. Egger et al. (1999) analyzed somatic symptoms associated with multiple types of emotional and behavioral disorders. Their results showed that girls who had an emotional disorder (e.g.; anxiety, depression) displayed more somatic symptoms than both girls without an emotional disorder and boys with an emotional disorder. In contrast, boys displayed more somatic symptoms if they had a disruptive behavior disorder (e.g.; oppositional defiant disorder, conduct disorder) compared to both other boys and girls with a disruptive behavior disorder. It should also be noted that the study highlighted a trend that supported the hypothesis that girls were more likely to have anxiety disorders and boys were more likely to have disruptive behavior disorders. Sixty percent of girls with an anxiety disorder reported somatic complaints compared to only 12% of girls without anxiety disorders. In contrast, somatic complaints were not significantly correlated with anxiety disorders in boys. The girls were significantly more likely than boys to suffer from stomachaches. When combining boys and girls, they found headaches to be the most common somatic complaint overall (for both disordered and nondisordered children), and headaches were especially common for girls

with anxiety. This finding contrasts with the results of Beidel et al. (1991), who found that headaches and stomachaches were not the most pervasive nor most prevalent empirically. They found that the most frequently reported somatic complaints were heart palpitations, sweating, flushes/chills, and feeling faint. Beidel et al. (1991) stated that research reporting that headaches and stomachaches were the most pervasive was limiting and narrowed the focus of too many clinicians attempting to diagnose childhood anxiety disorders. These clinicians were not noting other possible somatic symptoms. The contradicting results highlight the importance of further research and the necessity to incorporate many different findings on childhood somatic symptoms.

Somatic symptoms are a manifestation of the complex interaction between the physical body and mental cognition. When children enter an anxiety provoking situation some of them react physically and their minds do not understand their physical reactions. Children are not likely to be cognizant of the fact that their physical reactions indicate that they are anxious. They only register that there is something wrong with them; they are ill. This sensation can heighten their anxiety and further increase their reactions. Studying somatic symptoms can be difficult because it is hard to notice if children are physically suffering if they do not verbalize their condition. Somatic symptoms are usually only noticed with careful scrutiny and often without the child's cooperation. An example of the difficulties possible can be illustrated in the incongruence in reporting a child's symptoms. Studies have found that there is a difference between the types of factors children report for symptoms versus what parents report symptoms to be (Cole, Hoffman, Tram & Maxwell, 2000). Cole et al. (2000) found there to be differences between what parents report and what children report, especially in terms of somatic symptoms. For example, they found that parents are better

reporters of sleeplessness, but that children are better reporters of all other somatic symptoms (e.g., headaches, stomachaches, shortness of breath, and psychomotor agitation). They also noted that perhaps the best way to evaluate childhood anxiety is through integration of reports by both parents and children. This approach allows for certain symptoms to be noted that may have otherwise gone undetected.

Although somatic symptoms are difficult to study, they are an important aspect of research in childhood anxiety, and should be further researched. Many studies have emphasized the importance of somatic research and demonstrated that somatic symptoms are a strong component of anxiety (e.g., Beidel et al., 1991; Egger et al., 1999; Puskar et al., 2003), but more attention is needed. A relationship exists, but more research is needed regarding how somatic symptoms can enhance the risk for anxiety, especially in a predisposed individual.

Factors Affecting Risk for Anxiety Diagnosis

A child's symptoms, both somatic and non-somatic, are related to many variables including gender, environment, parental behavior, and biology. Many studies have reported higher anxiety rates in girls than in boys. Lewinsohn et al. (1998) studied this finding not only in the context of gender but age of onset and length of anxious episodes. They found that not only is anxiety more prevalent in girls, but by age six girls are already twice as likely as boys to have experienced an anxiety disorder. However, neither age of onset nor length of episode differed statistically between the genders. The authors interpreted these findings as potential evidence of a genetic difference rather than an environmental difference. For example, if a boy and a girl are raised in the same environment, Lewinsohn et al. (1998)

hypothesize that a manifestation of anxiety would be far more likely in the girl than in the boy.

There are various theories to explain the heightened risk of anxiety disorders for girls. For example, Lewinsohn et al. (1998) adapted a theory presented by Nolen-Hoeksema originally created for gender differences in unipolar depression. Lewinsohn et al. (1998) suggested that adolescent girls are more likely to reflect and self-focus when distressed whereas adolescent boys distract themselves. Lewinsohn et al. (1998) used Nolen-Hoeksema's theory to suggest that perhaps girls ruminate more on future events than boys do. This difference may be a contributing factor to the prevalence of girls with heightened anxiety, but that theory has yet to be fully developed with empirical research.

Gender is however only one risk factor that may contribute to an increased potential for developing an anxiety disorder. There is evidence demonstrating a possible genetic risk. Anxiety disorders have a strong tendency to run in families. For example, Stein, Jang, and Livesley (1999) conducted a study of monozygotic and dizygotic twins and found a broad heritability estimate of 45%. Of course, such studies indicate not only the potential for a genetic factor but an environmental factor as well (Vasey & Ollendick 2000). There is no way to perfectly distinguish between environment and genetics. Twin studies have been used to isolate some of the genetic effects. Andrews, Stewart, Allen, and Henderson (1990) reported that concordance rates for anxiety disorders were significantly higher in monozygotic twins than dizygotic twins (as cited by Mash & Barkley, 2003). However, the type of anxiety disorders twins manifested varied. The study suggested that genetics predisposed children to anxiety and environmental factors had a greater influence on the type of anxiety disorder manifested. This finding was based on the evidence that monozygotic

twin pairs did not usually have the same types of anxiety disorders (Mash & Barkley, 2003). A great deal of the literature indicates that a wide combination of factors predispose children to an anxiety disorder.

Negative affectivity and behavioral inhibition have generated the most attention as risk factors for childhood anxiety (Vasey & Ollendick, 2000; Albano et al., 2001). Negative affectivity is a persistent negative mood including nervousness, guilt, sadness, and anger (Mash & Berkley, 2003). Negative affectivity has been labeled as a predictor for later emotional and behavioral problems in adolescence (Craske, 2003). Negative affectivity can be influenced by both predisposition and environmental stressors. Negative affectivity is broadly defined, within which fits the definition of behavioral inhibition.

Behavioral inhibition is a temperamental disposition in which a child is typically withdrawn, irritable, and avoids challenges. Behavioral inhibition in a child can be noted as early as the first few months of life. A baby who is behaviorally inhibited has high reactivity in the form of crying, irritability, and high motor activity in response to stimuli (Craske, 2003). As a toddler, the child is withdrawn and shy, and as the child becomes older he or she is cautious, quiet, and introverted (Craske, 2003). One of the most prominent theories regarding behavioral inhibition is Gray's Behavioral Inhibition System. Gray hypothesizes that an individual with high neuroticism and low extraversion is prone to behavioral inhibition (Gray, 1978). Anxiety is the result of individual differences in the behavioral inhibition system (Craske, 2003).

These temperamental styles are risk factors because children with negative affectivity or behavior inhibition interpret their world through how they are feeling. Temperament can have an influence through predisposition (i.e., diathesis-stress model), can be influenced and

shaped by the environment, and can shape how the environment is perceived (Craske, 2003). If behaviorally inhibited children are constantly in a negative temperamental state the impact may lead to a warped view of not only their world but their coping mechanisms. If children cannot cope with their world they will exacerbate their negative temperament. Temperament styles can also influence attachment between a child and a parent. A child who is difficult could influence how the parent treats the child, whether the parent is aware of it or not. Poor attachment in children can lead to an interpretation of their world as threatening and dangerous, which has been shown to be a risk factor in internalizing disorders (Mash & Barkley, 2003).

Parental behavior can predispose a child to anxiety in numerous ways. The parent is not only the source of the genetic influence but the environmental influence as well. Beidel and Turner (1997) highlighted two ways that parents can influence a child's anxiety disorder. They found that parents of anxious children are likely to score high on anxiety scales themselves. Also, there is a greater risk for children in developing an anxiety disorder if their parents have anxiety disorders (Mash & Barkley, 2003). Unfortunately, even parents without anxiety disorders themselves, even with the best of intentions, can also exacerbate a child's anxiety. Whether due to behavioral inhibition or overprotective parenting, Menzies and Clark (1995) propose that another factor in anxiety may be failure of the mastery process (as cited by Veeraraghavan & Singh, 2002). If a child cannot master the coping skills needed to overcome fears he or she may begin to avoid and fear a multitude of things. This pattern may be especially significant in phobic anxiety. If children are already timid, their parents may be trying to assist by helping them avoid what they fear, which may actually hurt their mastery processes. If a child is already shy and a parent is overprotective, the child may become

demotivated to even attempt new things or participate in novel situations (Veeraraghavan & Singh, 2002).

Although studies have shown behavioral inhibition in childhood to be associated with a heightened risk for anxiety, many children who are behaviorally inhibited do not develop anxiety disorders (Vasey & Ollendick, 2000). It has been suggested that when parents are able to set firm limits for their children to teach them how to better cope with anxiety provoking situations, the child is significantly less likely to develop an anxiety disorder (Vasey & Ollendick, 2000). The role of the parent can be a strong influence in being a protective factor against a child developing an anxiety disorder. Through modeling a parent can demonstrate how to react to certain stimuli as well as how to use successful coping strategies in anxiety provoking situations. Parents can be a risk factor or a protective factor. The influence they have over their children is monumental and can impact not only a child's anxiety but multiple important aspects of their lives.

Self-Esteem and Its Relationship with Anxiety

In its most simple form self-esteem can be defined as the degree to which a people like and respect themselves (Westen, 2001). A strong sense of self-esteem can be cultivated when people focus more on their strengths than their weaknesses. Westen (2001) describes self-esteem not as something that people “have” but as a set of skills they use to evaluate the world around them. When people with higher self-esteem are presented with a problem, they are more likely to believe they have the skills to solve the obstacle. Those who score lower on a self-esteem scale may be indicating that they do not have faith in their own coping skills. Before even starting to solve a problem they question if they can be successful. The overall definition for self-esteem generally refers to a person's evaluation, or attitude toward,

him or herself (Pyszczynski, Greenberg, Solomon, Arndt & Schimel, 2004). Self-esteem can be described as a hierarchical structure with people evaluating themselves on a variety of levels such as physical attractiveness, intelligence, morals, and so on. There have been postulations of many different types of self-esteem (contingent vs. noncontingent, explicit vs. implicit, stable vs. unstable, global vs. domain specific) however the underlying theme is that self-esteem is a person's evaluation of self, and people are generally motivated to maintain and defend high levels of self esteem (Pyszczynski et al., 2004).

The self-esteem of a child is incredibly important because it influences multiple aspects of a child's life. Self-esteem can be seen as a cognitive construct. Children younger than approximately age seven are likely to think of themselves in absolute terms, for example, "I am good" or "I am bad" (Vasey & Ollendick, 2000). This absoluteness has been attributed to the level of their cognitive skills. Prior to age seven they may base their worth on material goods or physical actions, evaluations of things that are tangible to them. As their cognitive skills develop they begin to recognize that other qualities can be incorporated into their self-evaluations such as their global self-worth, i.e., what they think of themselves in the context of being people. Self-esteem in children is an important construct because levels of self-esteem have been reported to influence a variety of outcomes from academics, to peer relations, to depression (Vasey & Ollendick, 2000).

Self-esteem can be cultivated through modeling, validation, and support, but how self-esteem is manifested can also depend upon culture. Self-esteem can be seen as a cultural construct; we believe in the validity of our cultural world view and it is important to us to live up to the standards that are part of that world view. According to Pyszczynski et al. (2004), self-esteem can vary across cultures. Also, what is used to value and judge one's self

depends on what that culture defines as important. People from more individualistic societies such as the United States may judge themselves using a different set of criteria than the criteria used in more collectivist societies. For example, many people in the United States value entrepreneurship, the ability for people to “follow the American Dream” and become individually successful. People tend to recognize the success of one person, for example the CEO of a Fortune 500 company, as an individual achievement. This approach stands in contrast to a country where collectivism is important, where people are recognized as a group, and for collective effort. This approach is illustrated in El Salvadorian faith-based communities where someone is highly regarded because he or she contributes to his or her community; everything is a reflection of the community rather than the individual. These examples of two different countries are used to illustrate how one’s culture can influence the set of criteria used to evaluate ones self. According to Pyszczynski et al.’s (2004) theory, people who identify with United States culture is more likely to evaluate themselves based on individual achievement where as people from an El Salvadorian faith-based community is more likely to evaluate themselves on how they contribute to their community. This contrast is an example of how the external environment of a child can influence how self-esteem is cultivated. There is however evidence that a child’s internal environment, the child’s self, can have a strong impact on the child’s own self-esteem.

Few studies have focused on anxiety and self-esteem in children in comparison to adults. However, those who have studied children and the interactions between their self-esteem and anxiety have found consistent results indicating that self-esteem and anxiety do influence each other. For example, a study conducted by Dorr, Pozner, and Stephens (1985) built upon previous research and supported the findings of a strong correlational relationship

between low self-esteem and high anxiety in children. They proposed that anxiety is a response to a stimulus that threatens the ego, and ego threats are direct attacks on self-esteem. These findings were later supported by Battle, Jarrat, Smit, and Precht (1988) who also found that low levels of self-esteem were associated with high levels of anxiety in children. It is of interest to note that since the late 1980's there have been very few follow up studies solely focused on childhood anxiety and self-esteem, however there have been a great many of adult studies pertaining to anxiety and self-esteem.

Self-esteem as a construct has enthralled researchers to the point that there are over 10,000 studies on self-esteem and its correlates. Most relevant to the current study, multiple studies have analyzed the relationship between anxiety and self-esteem in adults (e.g., Leitenberg et al., 1986; Morvitz & Mota, 1992; Zimmerman, Ramirez-Valles, Zaperr, & Maton, 2000). In 1986 Greenberg, Pyszczynski, and Solomon first presented their terror management theory, which states that people develop self-esteem as a buffer against anxiety. People are motivated to maintain and defend self-esteem because of the buffer against anxiety it provides. Greenberg et al. (1992) go on to say that anxiety stems from the realization of mortality and that strong self-esteem is the direct result of a buffer against the frightening realization of one's morality. Maintaining self-esteem is a way to generate a positive image of one's self, which protects a person against anxiety. Therefore, according to their theory, if someone's self-esteem is weakened then they are more susceptible to the effects of anxiety provoking stimuli.

Greenberg et al. (1992) have continued to work with the terror management theory. They believe that often researchers neglect the question of why people need self-esteem. Their studies link self-esteem and anxiety by testing the following idea: if self-esteem

protects people from anxiety, then threats to self-esteem should produce anxiety. Research was conducted using self-report and physiological indices to support this theory. Greenberg et al. (1992) conducted two separate studies evaluating self-esteem and anxiety. The first study was designed to show that increasing self-esteem would reduce anxiety when responding to a threat. Their participant pool consisted of 52 male students who had previously filled out a personality questionnaire. For the self-esteem manipulation participants were given false feedback regarding their personality tests. Half were given results intended to boost self-esteem with phrases such as, “Your personality is fundamentally strong.” The other half were given neutral feedback with phrases such as, “You may have some personality weaknesses but you are able to compensate for them.” The threat manipulation was created by having the participants view a video that addressed various ways individuals die. Half of the participant saw neutral scenes from the video that addressed death. The other half viewed actual graphic scenes of autopsies. Following the video, the participants were given the state portion of the State-Trait Anxiety Inventory. They also filled out the Rosenberg Self-Esteem Scale as a check on the self-esteem manipulation. Their results were conclusive. The self-esteem manipulation was not only successful but the experiment demonstrated that heightened self-esteem can protect against anxiety. The graphic video led to heightened anxiety in the neutral self-esteem participants but had no effect on the enhanced self-esteem participants. This indicated that the self-esteem boost did serve as a buffer against anxiety provoking situations.

A second study was conducted by Greenberg et al. (1992) to assess self-esteem as an anxiety buffer. Their first study used graphic death scenes as a threat; the second study utilized the threat of electric shock. Self-esteem was manipulated by giving the 44 male

participants an anagrams test. Half were not given feedback and the other half were told they scored in the 90th percentile. After the self-esteem manipulation the participants were hooked up to a monitor designed to measure physiological responses. The neutral group was told that there would be an anticipation period and then light waves would be generated and their responses would be measured. The threat group was told that there would be an anticipation period and then mildly painful electric shocks would be administered. The experiment proceeded as explained except no electric shocks were actually administered. The researchers measured the participant's skin conductance both before the test "feedback" to determine a baseline and then measured at seven 30 second intervals during the anticipation period of the experiment. Their results indicated that the participants with increased self-esteem were generally less physiologically aroused than were neutral self-esteem participants in response to the threat of electric shock.

This research by Greenberg et al. (1992) demonstrated that a boost in self-esteem can provide an anxiety buffer. The research also demonstrated this relationship across a range of threatening situations (threat of shock vs. watching disturbing autopsy videos) and at a physiological level. Their research supports the terror management theory. Research by Pyszczynski et al. (2004) further supports the terror management theory, as well as illuminates other views on why self-esteem is an important construct. Other postulations focus less on anxiety and mortality and more on self-evaluation and social inclusion. For example, Leary and Baumeister (2000) suggest that self-esteem is generated to maintain well-being, positive affect, and feedback on coping efforts. They emphasize how self-esteem is used to evaluate one's fitness to be included in certain social groups. Pyszczynski et al. (2004) discuss how these three reasons for self-esteem(maintaining well-being, positive

affect, and feedback on coping efforts) are related to self-esteem by serving as an anxiety buffer because these factors are also adversely affected if someone is highly anxious (Pyszczynski et al., 2004).

Although terror management theory is only one view it incorporates many ideas to illustrate how self-esteem and anxiety can be important correlates. Pyszczynski et al. (2004) also cite that research on terror management theory is the most empirically sound theory available to explain the function of self-esteem. Further, the theory has a strong empirical basis as well as the support of many other researchers. For example, researchers Mikulincer, Florian, and Hirschberger (2003) created a theory that integrates terror management theory and attachment theory focused on anxiety buffering properties and a source of control offered by early attachment to caregivers. Research on the terror management theory may also have important implications for anxiety prevention in children; specifically it suggests that boosting self-esteem may be an important task in reducing a child's anxious response and his or her risk for anxiety. Further research in the area of childhood anxiety, anxiety risk, and self-esteem, would not only help clarify the possible relationship between anxiety and self-esteem but it could have implications for prevention and intervention as well. Perhaps almost as important, future research on childhood anxiety would also help develop child-specific evidence with which to evaluate these primarily adult based theories.

Perceived Parental Support

Parental behavior is important to examine in the study of childhood anxiety and children at risk for anxiety. Multiple studies have been conducted linking parental behaviors and child anxiety. To review this evidence Ginsburg, Siqueland, Masia-Warner, and Hedtke (2004) conducted a meta-analysis regarding childhood anxiety and family/parenting

behaviors. They found that approximately 20 different high quality studies have been conducted that analyzed the relationships between family/parenting variables and anxiety in children. The studies examined parenting either through child and parent questionnaires or observations. The most commonly reported variables with a significant relationship to anxiety were parental overprotection, overcontrol, and reinforcement of avoidance or anxiety. The meta-analysis reported that two of three studies found overprotection to be associated with higher levels of anxiety. Five of seven studies concluded that reported overcontrol of parents was positively correlated to higher anxiety in children. For example, in the context of social phobia adolescents with social phobia were significantly more likely to perceive their parents as overprotective. This meta-analysis suggests that there is a relationship between perceived parental behavior and child anxiety. It also notes that the difficulty in analyzing the current literature of parental reports and child reports because of a wide variety of participant sample size, demographics, and method of data collection. This should not however discount the important fact that there are differences between parent and child reports that significantly correlate to certain aspects of a child's development.

Gaylord, Kitzman, and Coleman (2003) investigated the issues pertaining to the differences between parent and child reports of parental behavior in relation to social adjustment. They reported that discrepancies between parent and child reports have been linked to childhood disorders. Specifically, discrepancies in supportiveness ratings from parent and child have been related to internalizing disorders. The same has not been shown for externalizing symptoms. It is possible that due to the withdrawn and introverted nature of an internalizing child the discrepancy between support and perceived support could go unnoticed and unaddressed. In order to further evaluate the previous research, Gaylord et al.

(2003) designed a study to compare discrepancies between child and parent reports in relation to child outcome. Child outcome was determined based on teacher reports of externalizing and internalizing symptoms, as well as peer ranking. They hypothesized, to begin with, that there would be discrepancies in parent versus child reporting of parental behavior in regard to support, covert control, and discipline. Larger discrepancies would indicate poorer child outcomes, the child's outcome would be moderated by the direction of the discrepancies (i.e., who is misinterpreting and in what direction) and that children's reports of parental behavior would be stronger predictors of their own social adjustment than would parent reports. The study involved 214 elementary school children from a rural area of mainly lower socioeconomic status. Children were given the Cornell Parent Behavior Inventory (CPBI) which measures how frequently parents display certain behaviors. The behaviors were broken into three broad categories: support, covert control, and discipline. Parents were given a modified version of the CPBI to report their own behaviors. Teachers were given the Teacher Report Form which emphasized internalizing and externalizing symptoms to measure the child's classroom behavior. As a class, the children were all given a sociometric report to rate how much they liked each one of their classmates.

Gaylord et al. (2003) found that parents did in fact rate themselves higher than their children did in regard to supportiveness. Although there were discrepancies between parent and child reports of control and discipline, the discrepancies were not significant. However, the larger the discrepancies, the higher the child's negative outcome as reported by the teacher. Specifically, parent-child discrepancies in ratings of paternal control and maternal discipline were highly correlated with poor child outcome. Children were especially likely to have poor negative outcomes if they perceived less control and less discipline than the

parents did. Gaylord et al. (2003) used their research to highlight the necessity of including both parent and child reports when assessing children, especially when looking at internalizing and externalizing factors in a child's disorder. Specific to internalizing disorders, Gaylord et al. (2003) found that discrepancies between father's perceived control, discipline, and support, and mother's perceived discipline predicted higher internalizing behavior. They concluded their research by reflecting that how children perceive their parents may be more influential than how parents perceive themselves.

Perceived parental support has been investigated from multiple angles in the field of psychology (Silverman, Saavedra, & Pina, 2001; Wren, Bridge, & Birmaher, 2004). Perceived parental support does not refer to the degree to which a parent believes, or truly does behave, in support of his or her children. Perceived parental support focuses on a child's perception of his or her parent's support. Parental support is reflected in how parents nurture their children through emotional, physical, and behavioral actions. Children base their beliefs not only on actual parental behaviors but on their personal interpretations of parent's intentions. Studies involving perceived parental support may be more relevant to a child's adjustment than are parents' actual behavior because the child's perception is what shapes inner experiences and the child's responses to the world around him or her. If children do not believe that their parents are supportive, they are more likely to react negatively, both internally and externally, regardless of a parent's intentions.

Perceived parental behavior may also be important in the context of self-esteem. Morvitz and Motta (1992) found children's perceptions of parental behavior were the strongest predictor of a child's self-esteem. The parental behaviors that were the focus of the study were acceptance vs. rejection, and autonomy vs. control. Autonomy vs. control was

further broken into psychological and firm vs. lax. Perceived parental behavior overrode achievement, self-concept, and parental attitudes in the prediction of self-esteem. This link of self-esteem and perceived parental behavior may have very interesting implications for the analysis among perceived parental behavior, anxiety, and self-esteem proposed for the present study. Previous research supports the theory that there is a link between self-esteem and parental support. The current research will build upon that theory while integrating the concept of anxiety and somatic symptoms. Research on anxiety and self-esteem, perceived parental behavior and anxiety, anxiety and self-esteem, and anxiety and perceived parental behavior have all been examined separately. The current research will bring all three factors together as well as enhance the investigation by adding somatic symptoms. This integration will offer a broader view on the complexity of variables that can influence a child at risk for anxiety.

Current Study

This current research focuses on studying childhood anxiety, somatic symptoms, self-esteem, and perceived parental support in children at risk for anxiety. The goal is the integration of past research while extending our understanding of children at risk for anxiety. Specifically, the study will examine children at risk for an anxiety disorder and the symptoms (both somatic and nonsomatic) they display most prominently. The study will also examine the relations between different symptom types and self-esteem, and how these relationships may be moderated by perceived parental support.

A great deal of research has been done on childhood anxiety (e.g., Albano et al., 2001; Ginsburg et al., 2004; Muris, 2002; Moore, Whaley, & Sigman, 2004) and self-esteem separately, but much less research combines the two. Studies that have examined both

anxiety and self-esteem have primarily focused on adults (e.g., Greenberg et al., 1992; Pyszczynski et al., 2004). The most relevant studies analyzing the relationship between childhood anxiety and self-esteem were conducted over 15 years ago (Battle et al., 1988; Dorr, et al., 1985). The current research builds upon the past research of Battle et al. (1988) and Dorr et al. (1985) by examining different anxiety symptom clusters, including somatic symptoms, which we now know to be central in anxiety and anxiety-risk for children (Beidel et al., 1991; Egger et al., 1999; Puskar et al., 2003). This study also built on past research by simultaneously examining perceived parental support. The variable of perceived parental support is incorporated based upon research by Ginsburg et al. (2004), which demonstrated a link between parent-child discrepancies in perceived parental support, and internalizing disorders. Examining these additional variables will offer a more holistic view of children at risk for anxiety.

Somatic symptoms may offer a tangible link between anxiety and self-esteem. Children with somatic factors may have a stronger negative self-image than children with non-somatic symptoms because they sense there is something physically wrong within. The sensation of somatic symptoms may influence not only the child's anxiety but his or her self-esteem as well. This researcher is interested in examining links between somatic symptoms and self-esteem because if there is a connection it may indicate important variables which need to be addressed in children at risk for anxiety. Investigating self-esteem and anxiety is also important because studies have shown that strong self-esteem can be a buffer against anxiety through enhanced coping skills (Greenberg et al., 1992) in adults. There is little research on this phenomenon in children. If anxiety is threatening a child's self-esteem, it may heighten his or her risk potential because coping skills are challenged.

Perceived parental support may play a role in risk versus resilience in the face of anxiety symptoms. If parents are unaware of their child's anxiety, or even if the child only perceives that a parent is unaware, the child could be at greater risk for associated distress and for progressing to a clinically diagnosable anxiety disorder. Studies have already indicated that parental behavior can have a significant impact on a child's self-esteem (Morvitz & Motta, 1992). Recognizing a connection between anxiety, low parental support, and low self-esteem could lead to intervention techniques that aim to increase parental sensitivity and parent-child communication about anxiety symptoms in order to boost self-esteem and reduce risk for clinical anxiety.

The main hypothesis of the current research is that children at risk for anxiety will demonstrate low levels of self-esteem, especially if they concurrently display somatic symptoms and perceive their parental support as low. This researcher expects that perceived parental support would moderate the relationship between anxiety and self-esteem in these at-risk children. Specifically, children who are anxious but perceive parental support to be high may be able to maintain higher self-esteem, especially if they do not display somatic symptoms. The goal of the research is to develop a better understanding of children at risk for anxiety at its earliest manifestations. This research may offer an empirical basis for making recommendations about potential treatment targets including self-esteem enhancement and parental support/communication enhancement to reduce a child's risk for developing an anxiety disorder.

Method

This study took place in the context of a large anxiety prevention study based out of the University of Rhode Island under the direction of Dr. Flannery-Schroeder. This current study only used data gathered before the intervention sessions began. In addition to collecting and analyzing data for the current study, the investigator worked with the anxiety intervention program in multiple capacities including suggesting measures for the test battery, administering tests to both children and parents, and being a group co-leader facilitating the intervention.

Participants

Originally higher numbers were anticipated but due to various factors, such as fewer children meeting criteria and time constraints, only this small sample was available for research purposes. Data collection is still in an ongoing process at this time. The total sample for this analysis was 22 children, 10 boys (45.5%) and 12 girls (54.5%). The mean age is 9.75, (SD = .85). Of these children 3 (14%) were in the 3rd grade, 8 (36%) were in the 4th grade, 9 were in the 5th (41%) grade and 2 did not report (9%). Of the children that reported their ethnicity, 5 identified as White (22.7%), 5 identified as Black/African-American (22.7%), 9 identified as Latino (40.9%), 2 identified as multi-racial (9.1%). One did not report race/ethnicity (4.5%). Of the 22 children, data were collected from 18 primary caregivers (81%), all of whom were mothers.

The children were recruited from 7 different elementary and middle schools in both urban and suburban areas in Connecticut and Rhode Island. The sample for the larger intervention study includes children who have screened positive as at risk for a potential anxiety disorder but have never been clinically diagnosed or met full criteria. For the current

study, all children (and their primary caregiver) who completed the battery of assessment questionnaires (see below) were included in the analyses regardless of whether the child met full criteria for a clinical anxiety disorder. Thus, the present sample includes children who are at-risk for an anxiety disorder and those who may also meet criteria for an anxiety disorder.

Parents gave consent for their children to participate in a life skills program prior to the screening phase of Multidimensional Anxiety Scale for Children (MASC) administration (see Appendix A). The parents were informed that if their children were eligible to continue they would again be asked to consent to a more extensive assessment process. The children gave their assent (see Appendix B) at the beginning of the screening process and were told that their participation was approved by their parents but the children could choose themselves not to participate if they desired. All children in the school for whom parents gave consent were administered the MASC, a self-report measure of anxiety symptoms in children. Children could also be nominated by their teachers. The teachers chose children based on whom they thought might be anxious from a list of students whose parents had already given consent for their child's participation in the program. Teacher nominations served as an additional screening tool to make sure that all individuals at risk for anxiety were identified, even if self-accuracy of anxiety symptoms was low. If the children nominated by the teacher did not make the MASC cutoff in the first round, they still continued on to the diagnostic assessment phase of the study.

Measures

Multidimensional Anxiety Scale for Children. (see Appendix C) (MASC; March, Parker, Sullivan, Stallings, & Conners, 1997). The MASC is a 39-item self-report inventory that assesses physical symptoms (tense/restless and somatic/autonomic), social anxiety

(humiliation/rejection and performance fears), harm avoidance (perfectionism and anxious coping), and separation anxiety. It was used as the preliminary screen to determine which participating children were at risk for anxiety disorders. The MASC was completed by all consenting children in the school. The scores were used to determine which children would be invited to complete a diagnostic assessment and ultimately be invited to participate in the study. The published cutoff score to determine if a child has an anxiety disorder is a score at the 80th percentile. However, since the study was looking for at risk children the cutoff score was lowered to the 70th percentile. The MASC has demonstrated test-retest validity (.93 at three weeks and .78 at three months in previous studies) as well as convergent and discriminant validity (March & Albano, 1998).

Harter Self-Perception Profile for Children. (see Appendix D) (Harter; 1985). This is a 36-item scale designed to assess a child's view of his or her own competence in the areas of scholastic, athletic, social, physical appearance, behavioral conduct, and global self-worth. The test is administered by reading two statements per question to the child. The children then chooses the description that is more like them, and then chooses whether the description is "really true" of them or "sort of true" of them. This measure was used as the primary measure for self-esteem in the current study. Reported chronbach's alphas range from .71 to .86 (Harter, 1985).

Children's Report of Parenting Behavior Inventory – Child and Parent Version. (see Appendix E and Appendix F) (CRPBI; Schwartz, Bartonhenry, & Pruznsky, 1985). The CRPBI is a 30-item questionnaire that assesses children's perception of their parents' behavior in the dimensions of social control, acceptance, and firm control. The child completes separate questionnaires for each parent and parents complete a reworded

questionnaire on themselves. Both versions were used in the present study to determine congruence between child and parent in the perception of parental behavior. Schwartz et al. (1985) reported internal consistencies ranging from .65 to .74.

Child Behavior Checklist. (see Appendix G) (CBCL; Flannery-Schroeder, 2001). The CBCL is a 118-item parent report scale assessing behavioral problems and social competencies. Items are rated from “not true” to “sometimes true” to “very true or often true”. The CBCL is used in the current study to measure the other behavioral problems a child is exhibiting in addition to anxiety. The CBCL looks at both externalizing and internalizing symptoms and has eight specific scales: aggression, rule-breaking, attention problems, social problems, thought problems, withdrawal/depression, anxiety/depression, and somatic complaints. The CBCL reports high retest reliability, inter-parent agreement, and validity (Flannery-Schroeder, 2001).

Behavioral Inhibition Scale – Parent and Child Version. (see Appendix H and Appendix J) (BIS; Muris, Merckelbach, Schmidt, Gadet & Bogie, 2001). The BIS assesses self-reports and parent reports of behavioral inhibition, which is a temperamental risk factor for anxiety. This measure is primarily used to assess a child’s shyness and communication and is correlated to anxiety. The form consists of two parts, on the first part the child or parent rates the child’s shyness on a scale of 1 to 4 (1 being never to 4 being always). On the second part, the participant is asked to choose which of three phrases best represents the child. The phrases generally describe a child who is either always shy, never shy, or somewhere in between. The BIS has good internal consistency with chronbach’s alphas ranging from .77 to .91 (Muris et al., 2001).

Children's Somatization Inventory. (see Appendix H) (CSI; Walker, Lewis & Garber, 2002). The Children's Somatization Inventory is a self-report questionnaire for children. It consists of 37 psychophysiological symptoms and asks the children to rate if they have felt the symptoms in the past two weeks on a scale of 1 = "not at all" to 4 = "a whole lot". Walker, Lewis & Garber, (2002) reported a coefficient alpha of .91 reflecting strong internal consistency.

Procedure

The Multidimensional Anxiety Scale for Children (MASC) was administered by graduate students from the University of Rhode Island and by local school psychologists to approximately 500 children in the school systems where consent and assent had previously been obtained. The MASC and teacher nominations were used to determine the children's eligibility to continue on in the study; children who scored in the 70th percentile or above on the MASC were identified as at risk for anxiety disorders. Teachers were also given a list of children with parental consent and were asked to pick up to three children whom they thought might be anxious. If a child scored below the MASC cutoff but was nominated by the teacher the child was considered eligible as well. The MASC was administered in groups of children, and the later battery of assessment tests was administered to children and primary caregivers individually. All eligible children and their parents went on to receive the Anxiety Disorder Interview Schedule (ADIS) and a battery of assessment tests to determine whether they met criteria for the prevention study. Children who currently, or in the past, met full criteria for a clinical anxiety disorder were screened out from the prevention study and referred for services. These children were not, however, screened out of the current investigation.

For participating families, parent measures were administered including the Child Behavior Checklist, Parent version of the Behavior Inhibition Scale, and Parent Report of Parenting Behavior Inventory. The entire battery took approximately 2 hours and the parents were paid \$15 an hour for their participation. The children were administered a similar battery including the Children's Report of Parenting Behavior Inventory, Child version of the Behavioral Inhibition Scale, Child Somatic Inventory, and the Harter Self-Perception Profile. The battery of tests was either done through the paper and pencil method or done on a laptop computer using Media Lab software. Pairs of graduate and undergraduate students administered the parent and child versions of the battery of tests to each family in one sitting. To clarify, while one interviewer was working with the parent on the ADIS the second interviewer was working with the child on a battery of tests. The assessments were primarily done on school grounds, but flexibility was required depending on the school regulations. Some assessments were done at the University of Rhode Island clinical psychology lab room and others were conducted in local libraries.

Results

Preliminary Analyses

Gender Comparisons. All MASC scales and subscales were first examined for gender differences. There were no gender differences on any of the overall anxiety scales (6 in all) or anxiety subscales (7 in all). For example, on the MASC total score, boys ($M=38.6$) and girls ($M=48.0$) showed equivalent levels of anxiety, $t(22) = -1.14, p = .354$. This pattern was consistent across MASC scales and subscales. There were also no differences between boys ($M=12.0$) and girls ($M=10.33$) on a different measure of somatic symptoms, the Children's Somatization Inventory (CSI), $t(22) = .296, p = .354$. There were also no gender differences

in self-esteem, across any of the scales of the Harter, in this at-risk sample. For example, there were no differences between boys ($M = 3.05$) and girls ($M = 2.87$) on the global self-worth scale, $t(22) = .540$, $p = .596$. Finally, there were no gender differences in perceived parental behavior. As an example, there were no differences between boys ($M = 20.10$) and girls ($M = 19.75$) on the perceived parental acceptance scale, $t(22) = .317$, $p = .755$. Because boys and girls at-risk for anxiety disorders did not differ in overall symptom levels, self-esteem, or parenting behavior (the key variables investigated in the current study) children were combined across gender for all subsequent analyses.

Relative Elevations in Symptom Clusters. Next, descriptive statistics for the MASC, using mean responses over each subscale, were presented to examine relative elevations for the different anxiety symptom clusters in this at-risk sample. As shown in Table 1, the current sample of children at risk for anxiety scored relatively high on the Harm Avoidance: Perfectionism subscale (highest mean), and relatively low on the Physical Symptoms: Somatic/Autonomic subscale (lowest mean). This indicates that the current sample of children at risk for anxiety self-reported perfectionism as their most pervasive concern, and physiological anxiety sensations as their least pervasive concern. Other mean ratings are noted in Table 1, and arranged in order of decreasing elevation. Harm avoidance concerns were most common, followed by separation concerns, social anxiety, and then physiological symptoms.

Absolute Elevations and Clinical Severity. Next, the numbers of children with clinically significant elevations on the MASC scales were examined. Table 2 shows the percentages of children meeting T-score cutoffs of 70 (clinically elevated), 65 (subclinically elevated), and 60 (elevated) for each of the MASC scales. Although all participants were self-referred or

Table 1

Mean Levels of Symptoms across MASC Subscales

Scale	M	SD
Hav Perf	2.12	.63
Hav A/C	1.93	.75
Separation/Panic	1.11	.75
SocAnx H/R	.99	1.12
SocAnx PF	.88	.71
Physical T/R	.69	.56
Physical S/A	.51	.56

n = 22

Note:

MASC = Multidimensional Anxiety Scale for Children ; Hav Perf = Harm Avoidance: Perfectionism; Hav A/C = Harm Avoidance: Anxious Coping; SocAnx H/R = Social Anxiety: Humiliation/Rejection; SocAnx PF = Social Anxiety: Performance Fears; Physical T/R = Physical Symptoms: Tense/Restless; Physical S/A = Physical Symptoms: Somatic/Autonomic

Table 2

Percent of Children in Clinical, Subclinical, or Elevated Range on MASC Scales

	Clinical T \geq 70	Subclinical T \geq 65	Elevated T \geq 60
MASC Total	9%	13%	23%
ADI	0%	5%	32%
Separation/Panic	32%	32%	50%
HarmAv. Total	9%	18%	41%
SocAnx. Total	5%	27%	27%
Phys. Total	0%	0%	5%

 n = 22

Note:

MASC = Multidimensional Anxiety Scale for Children; ADI = Anxiety Disorder Index; Phys. = Physical

Symptoms; HarmAv. = Harm Avoidance; SocAnx. = Social Anxiety

teacher-referred due to concerns about anxiety, only 9% of the sample scored in the clinically significant range ($T \geq 70$) for overall anxiety on the MASC total, and none met this threshold for the Anxiety Disorder Index. More children met the Borderline and Elevated cutoffs (see Table 2). When symptom cluster scales were examined, the Separation/Panic scale had the most clinically significant children, 32% with a T-score above 70. Fifty percent of the children had an elevated score in the Separation/Panic scale, with a T-score above 60. The Physical Symptoms scale had the least amount of children with clinical elevations, with 0% in the clinical range and 5% in the elevated range (see Table 2).

Intercorrelations among Anxiety Symptom Clusters. Intercorrelations among the MASC scale totals reflect that different aspects of anxiety are related to one another in these at-risk children (see Table 3). Separation/Panic was significantly correlated with the Physical Symptom totals, Social Anxiety totals, Anxiety Disorder Index (ADI), and MASC total. Physical Symptom totals were significantly correlated with both Social Anxiety totals and the ADI. Harm Avoidance was not correlated with Physical Symptoms, or with Social Anxiety, but it was correlated with the Anxiety Disorder Index. Social Anxiety was also correlated with the Anxiety Disorder Index. These correlations with ADI are expected given that the ADI includes items from each of subscales in the MASC. All of the scale totals significantly correlated at the .01 level with the overall total MASC score, of which they were a part (see Table 3).

To further examine interrelations among anxiety symptoms clusters, a more detailed intercorrelational matrix was created including all MASC subscales. None of these scales had overlapping items. Physical Symptoms: Tense/Restless positively correlated with Social Anxiety: Humiliation/Rejection. The Physical Symptoms: Somatic/Autonomic scale was

Table 3

Intercorrelations among MASC Subscale Totals

	Phys. Symp	HarmAv	Social Anxiety	Sep/Pan	ADI	Overall
Physical Symptoms	—	.290	.564*	.591**	.618*	.808*
Harm Avoidance	—	—	.259	.353	.615*	.602*
Social Anxiety	—	—	—	.446*	.770*	.785*
Sep/Pan	—	—	—	—	.498**	.801*
ADI	—	—	—	—	—	.835*
Overall	—	—	—	—	—	—

n = 22, ** p < .01, p < .05*

Note:

Phys. Symp = Physical Symptoms; HarmAv = Harm Avoidance; MASC = Multidimensional Anxiety Scale for Children; ADI = Anxiety Disorder Index; Sep/Pan = Separation/Panic

significantly correlated with both Social Anxiety: Humiliation/Rejection, and Social Anxiety: Performance Fears, as well as the Separation/Panic scale. The 2 Harm avoidance subscales were only intercorrelated with each other. Overall, the 2 subscales making up each of the total scales (Physical Symptoms, Harm Avoidance, or Social Anxiety) were intercorrelated as pairs, but not overwhelmingly so. This indicates that the broader scale totals contributed to represent legitimate symptom clusters (see Table 4).

Consistency in Child Reporting of Somatic Symptoms. Because somatic symptoms were a focus of the current investigation, a correlational analysis was conducted to examine children's abilities to consistently report on somatic symptoms across measures. There was a significant positive relationship between the Physical Symptoms total of the MASC and the Children's Somatization Index (CSI), $r = .453, p = .003$. This finding indicates that children were reliably reporting their somatic symptoms across measures.

Parent and Child Agreement in Anxiety Reports. Before examining the relationship between anxiety and self-esteem, and anxiety and parenting, the correspondence between child and parent reports of anxiety was examined. Correlational analyses revealed no significant relationships between the child's total scores on the MASC and the parent's reports of the child's anxious, somatic, and internalizing symptoms on the Child Behavior Checklist (CBCL). There was, however, a consistent trend toward a negative correlation between child and parent perceptions on all totals except the Harm Avoidance scale total (see Table 5).

This finding demonstrates that children and parents do not perceive child anxiety symptoms similarly. Because this finding is consistent with other research on child anxiety, and because other research shows that children are the best reporters of their internalizing

Table 4

Intercorrelations among MASC Subscales

Subscales	Phy. T/R	Phy. S/A	Hav Perf	Hav A/C	SA H/R	SA PF	Sep/Pan
Phy. T/R	—	.551*	.181	.229	.475*	.276	.374
Phy. S/A	—	—	.209	.284	.465*	.478*	.664
Hav Perf	—	—	—	.629*	.284	.303	.098
Hav A/C	—	—	—	—	.402	.365	.468*
SA H/R	—	—	—	—	—	.508*	.265
SA PF	—	—	—	—	—	—	.646*
Sep/Pan	—	—	—	—	—	—	—

n = 22, * p < .01

Note:

MASC = Multidimensional Anxiety Scale for Children ; Phy. T/R = Physical Symptoms: Tense/Restless;

Phy. S/A = Physical Symptoms: Somatic/Autonomic; HavPerf = Harm Avoidance: Perfectionism; Hav A/C =

Harm Avoidance: Anxious Coping; SA H/R = Social Anxiety: Humiliation/Rejection; SA PF = Social Anxiety:

Performance Fears; Sep/Pan = Separation/Panic

Table 5

Relationships among Parent's Reports of Child's Anxiety, Somatic Symptoms, and Internalizing and Children's MASC Scores

	CBCL_Anxiety	CBCL_Somatic	CBCL_Internalizing
Physical Symptoms	-.292	-.217	-.366
Harm Avoidance	.200	.130	.107
Social Anxiety	-.185	-.163	-.329
ADI	-.126	-.265	-.341
Overall	-.079	-.152	-.229

n = 22

Note:

CBCL = Child Behavior Checklist; MASC = Multidimensional Anxiety Scale for Children

symptoms, child reports of anxiety are the focus of all subsequent analyses.

Anxiety and Self-Esteem

The first analysis conducted to begin exploring the relationship between anxiety and self-esteem included correlations between the MASC scale total scores for anxiety and the Harter scale scores for self-esteem. As show in Table 6, the Social Anxiety scale was significantly negatively correlated with all aspects of the Harter self-esteem scale: Scholastic Competence, Social Acceptance, Athletic Competence, Physical Appearance, Behavioral Conduct, and Global Self-Worth. The higher the children's social anxiety level, the lower they scored on all self-esteem scales. The Physical Symptoms: Somatic/Autonomic scale was significantly negatively correlated with four self-esteem scales: Scholastic Competence, Social Acceptance, Athletic Competence, and Physical Appearance. The Anxiety Disorder Index and the MASC total were also correlated with several aspects of children's self-esteem. The Harm Avoidance scale was the only anxiety scale that did not significantly correlate with any of the self-esteem scales (see Table 6).

To further enrich our understanding of the relationships between anxiety, somatic symptoms, and self-esteem, correlational analyses were conducted including all of the anxiety subscales from the MASC, and the CSI. The Social Anxiety: Humiliation/Rejection scale was significantly negatively correlated with all of the self-esteem scales. However, the Social Anxiety:

Performance Fears scale was only significantly correlated, in the negative direction, with Scholastic Competence, Social Acceptance, and Athletic Competence. The Physical Symptoms: Somatic/Autonomic scale was negatively significantly correlated with all of the self-esteem scales except for the Social Acceptance scale (see Table 7). The Physical

Table 6

Correlations among MASC Totals and Harter Subscales

	Scholastic	SocAccep	AthComp	PhyApp	BehCon	Global
Physical Symptoms	-.610**	-.465*	-.450*	-.475*	-.439	-.400
Harm Avoidance	-.157	-.104	-.309	.127	.119	.154
Social Anxiety	-.882**	-.832**	-.667**	-.652**	-.522**	-.646**
ADI	-.661**	-.616**	-.419	-.451*	-.454*	-.430
Overall	-.696**	-.596**	-.645**	-.438	-.402	-.389

n = 22, * p < .05, ** p < .01

Note

MASC = Multidimensional Anxiety Scale for Children; SocAccep = Social Acceptance;

AthComp = Athletic Competence; PhyApp = Physical Appearance; BehCon = Behavioral Conduct

Symptoms: Tense/Restless scale was only significantly negatively correlated with the Scholastic Competence scale and the Social Acceptance scale (see Table 7). Interestingly, the CSI scale assessing children's somatic symptoms was only significantly correlated with self-esteem in the athletic domain. This scale focuses heavily on autonomic arousal items. Neither of the Harm Avoidance subscales was correlated with any aspect of self-esteem.

Separation/Panic symptoms were only correlated with athletic self-esteem (see Table 7).

Parenting Support

Parent-Child Agreement. To measure perceived parenting support the Children's Report of Parenting Behavior Index (CRPBI) was used. This scale has three subscales; acceptance, behavioral control, and psychological autonomy. Both children and parents provided their perspectives on these parenting dimensions. Before examining relations between perceived parental support and anxiety, correlations were performed between parenting behavior by parent report and parenting behavior by child report.

As shown in Table 8, parent and child reports of parenting behavior were only modestly correlated and, due in part to the small sample size, none of these correlations was significant. In fact, there was a trend for the child's perception of psychological autonomy and parental perceptions of psychological autonomy to negatively correlate, although this did not reach significance ($p = .097$). This suggests that parents and children do not perceive parenting behavior around issues of psychological autonomy and control in similar ways. Parent-child correlations for acceptance and behavioral control were positive, suggesting better agreement, but these correlations were more modest, and also not significant. Because child perceptions of low parental support have been linked to internalizing and self-esteem problems, even when parent reports of parental support are high, the focus is on children's

Table 7

Correlations among Harter Scales, MASC Subscales, and CSI Score

	Scholastic	SocAccep	AthComp	PhyApp	BehCon	Global
HarmAV Perf	-.231	-.239	-.275	.011	-.116	.008
HarmAV A/C	-.084	.001	-.282	.183	.254	.236
Separation/Panic	-.422	-.348	-.531*	-.262	-.330	-.210
SocAnx H/R	-.901**	-.819**	-.632**	-.714**	-.525**	-.713**
SocAnx PF	-.573**	-.599**	-.526**	-.331	-.355	-.319
Physical T/R	-.588**	-.493*	-.236	-.367	-.300	-.229
Physical S/A	-.480*	-.322	-.547*	-.463*	-.465*	-.467*
CSI Score	-.291	-.174	-.488*	-.438	-.280	-.300

n = 22, * p < .05, ** p < .01

Note:

MASC = Multidimensional Anxiety Scale for Children; CSI = Children's Somatization Inventory; HarmAV Perf = Harm Avoidance: Perfectionism; HarmAV A/C = Harm Avoidance: Anxious Coping; SocAnx H/R = Social Anxiety: Humiliation/Rejection; SocAnx PF = Social Anxiety: Performance Fears; Physical T/R = Physical Symptoms: Tense/Restless; Physical S/A = Physical Symptoms: Somatic/Autonomic; SocAccep = Social Acceptance; AthComp = Athletic Competence; PhyApp = Physical Appearance; BehCon = Behavioral Conduct

Table 8

Relationships among Parenting Behavior by Parent Report and Parenting Behavior by Child Report

	C. Acceptance	C. Behav.Cont	C. PsychAuton.
P. Acceptance	.273	.039	-.403
P. Behav. Cont.	.186	.248	-.116
P. Psych. Auton.	.034	.402	-.434

n = 22

Note:

P = parent report; C = child report; Behav. Cont. = Behavioral Control; Psych. Auton. = Psychological

Autonomy

perceptions of parenting behavior in the subsequent analyses.

Relations Between Perceived Parenting Support and Anxiety. To examine the relations between perceived parenting behavior and anxiety, correlations were performed using child reports of acceptance, behavior control, and psychological autonomy and all MASC scale totals (see Table 9). Perceived behavioral control did significantly correlate with a child's Anxiety Disorder Index (ADI) score. This finding demonstrates that the higher a child rates their parental control the higher they score on the ADI. None of the other scales were significantly correlated.

Relations Between Perceived Parenting and Self-esteem. To examine the relations between parenting and self-esteem in children at risk for anxiety disorders, the child's parenting perception subscales were correlated with the scales in the self-esteem measure (see Table 10). Self-esteem for Social Acceptance and Behavioral Conduct were both significantly correlated with psychological autonomy. Thus, the higher children rated their psychological autonomy in their relationships with their parents, the higher they scored on the social acceptance and behavioral conduct scales of self-esteem. Higher parental behavioral control had a tendency to correlate negatively with all self-esteem scales, except Athletic Competence, but not significantly. No other scales correlated significantly.

Anxiety, Self-Esteem, Perceived Parental Support

A final hypothesis of this study was that perceived parenting support would moderate the relationship between anxiety and self-esteem, and perhaps between anxiety and somatic symptoms. Specifically, children with high anxiety, but high parental support might have higher self-esteem (and lower somatic symptoms) than children with high anxiety, but lower parental support. To examine this possibility, four groups were formed: (1) Children with

Table 9

Relationships among Children's Perceived Parenting Behavior and MASC subscales

	Phy Symp	Harm Avoidance	Social Anxiety	Sep/Pan	ADI	Overall
C. Acceptance	.053	-.076	.012	-.122	.007	-.044
C. Behav. Cont.	.339	.122	.322	.050	.476*	.278
C. Psych. Auton.	-.107	.113	-.107	-.369	-.122	-.169

n = 22, *p < .05

Note:

Phy Symp: Physical Symptoms; MASC = Multidimensional Anxiety Scale for Children; ADI = Anxiety

Disorder Index; Sep/Pan = Separation/Panic; Behav. Cont. = Behavioral Control; Psych. Auton. =

Psychological Autonomy

Table 10

Relationships among Children's Perceived Parenting Behavior and Children's Self-Esteem

	Scholastic	SocAccep	AthComp	PhyApp	BehCon	Global
C. Accept.	.209	.107	.174	-.099	.153	-.209
C. Behav.	-.201	-.344	.182	-.059	-.040	.118
C. Psych.	.260	.460*	.076	.330	.508*	.275

n = 22, p < .05

Note:

C. Accept = Children Acceptance; C. Behav. = Behavioral Control; C. Psych. = Psychological Autonomy;

SocAccep = Social Acceptance; AthComp = Athletic Competence; PhyApp = Physical Appearance; BehCon =

Behavioral Conduct

high total anxiety on the MASC, and parental acceptance scores that were above the mean ($n = 5$), (2) children with high total anxiety, but low parental acceptance ($n = 5$), (3) children with low total anxiety, but high parental acceptance, and ($n = 4$) (4) children with low total anxiety and low parental acceptance ($n = 8$). Small sample sizes limited the power to detect true differences between groups, but a series of ANOVAs was conducted to explore the possible moderating role of parental support.

First, six 2 (parental acceptance level) x 2 (anxiety level) ANOVAs were conducted on the Harter Self-esteem subscale scores. No significant interactions between anxiety level and parental acceptance level were revealed for any of the analyses, suggesting that parental acceptance did not moderate the relationship between anxiety and self-esteem. Across most analyses, however, there was a main effect for anxiety level. For example, for the Global Self-Worth scale, there was no main effect for parental acceptance group $F(1, 16) = .004, p = .950$, but there was a main effect for anxiety group $F(1, 16) = 6.83, p = .019$. An examination of the means showed that the low anxious children had higher self-esteem ($M = 3.34, SD = .216$), and that the high anxious children had lower self-esteem ($M = 2.51, SD = .232$). This finding reflects the relationship between child reported anxiety and self-esteem described in the correlational analyses. As noted, the interaction between the parental acceptance and anxiety level was not significant, $F(1, 16) = .030, p = .864$.

Next, a 2 (parental acceptance level) x 2 (anxiety level) ANOVAs was conducted on the Children's Somatization Index. There was no main effect of parental acceptance, $F(1, 18) = .048, p = .830$, but there was a main effect for anxiety level, $F(1, 18) = 9.77, p = .006$. An examination of the means revealed that the low anxious group reported fewer somatic symptoms ($M = 3.94, SD = 3.39$), and the high anxious group reported more ($M = 19.10, SD$

= 3.50). This finding reflects the relationship between anxiety and somatic symptoms revealed in the correlational analyses. There was no interaction between parental acceptance and anxiety level, $F(1, 18) = .653, p=.430$.

Table 11

Analysis of Variance for Self-Esteem Subscales by Parental Acceptance and Anxiety Level

Scholastic	df	F	p
Between subjects			
Parental Accep. (PA)	1	2.47	.136
Anxiety (A)	1	24.49**	.000
PA x A	1	.128	.725
S within-group			
error	16	(.477)	
<hr/> Social Acceptance <hr/>			
Parental Accep. (PA)	1	.075	.787
Anxiety (A)	1	18.32**	.001
PA x A	1	.056	.816
S within-group			
error	16	(.233)	
<hr/> Athletic Competence <hr/>			
Parental Accep. (PA)	1	1.47	.243
Anxiety (A)	1	26.57**	.000
PA x A	1	1.47	.243
S within-group			
error	16	(2.63)	

Physical Appearance	df	F	p
Parental Accep. (PA)	1	.135	.718
Anxiety (A)	1	11.82*	.003
PA x A	1	.234	.635
S within-group error	16	(.391)	
Behavioral Conduct			
Parental Accep. (PA)	1	.671	.425
Anxiety (A)	1	5.08*	.039
PA x A	1	.014	.906
S within-group error	16	(.407)	
Global Self Worth			
Parental Accep. (PA)	1	.004	.950
Anxiety (A)	1	6.83*	.019
PA x A	1	.030	.864
S within-group error	16	(.477)	

Note: Values enclosed in parentheses represent mean square errors.

* $p < .05$, ** $p < .01$

Discussion

General Overview

The purpose of this research was to explore self-esteem in children at risk for anxiety and examine the potential moderating factors of somatic symptoms and perceived parental support. The original hypothesis was that children who are at risk for anxiety would score low on self-esteem measures. It was expected that the self-esteem of these at risk children would be especially affected if they also exhibited somatic symptoms and perceived their parental support as low. The overall findings of this research support previous research on anxiety and self-esteem by demonstrating a correlation between high anxiety and low self-esteem. The current research also extended these findings to children at risk for anxiety disorders. Although somatic symptoms were not reported as a major concern by these children, there was a significant correlation between somatic symptoms and lower self-esteem, especially in terms of perceived athletic competence. In terms of parental reports, analyses showed that parent and child measures of anxiety did not correlate significantly. Parents and children were also not congruent in their perception of parental behavior. Children's perception of their parents' behavior did significantly correlate with both anxiety and self-esteem on specific subscales. However, no moderating effects were detected in the current research. Overall, the current research suggests many potential areas of interest of future research. Unfortunately, the small sample size limited the power to detect differences that may exist, and the ability to test for moderating effects.

Children at risk for anxiety disorders

One of the purposes of the current study was to investigate characteristics of a sample of children at risk for an anxiety disorder. At risk samples are not a major focus of current

research on anxiety in children, but more information on the characteristics of at risk children could generate more productive prevention and intervention techniques. In the current sample, an analysis of mean scores on a prominent anxiety self-report measure (MASC) indicated that children rated perfectionism as their most prevalent concern and physical/somatic symptoms as their least. In general, anxiety is usually associated with feelings of apprehension and worry. Symptoms can be manifested in a variety of ways including irrational cognitive processes and somatic manifestations. In an at risk sample, one would expect to find similar symptoms but less frequently and at a less intense level. Preliminary analyses indicated that children in this sample did score in either the clinical, subclinical, and elevated ranges. A majority of the children were in the subclinical and elevated range with only two children in the clinical range for the overall MASC total.

Many of the different aspects of anxiety measured (Physical Symptoms, Separation/Panic, Social Anxiety, Harm Avoidance, Anxiety Disorder Index, and Overall scores) significantly correlated with one another. All of the subscale totals correlated with at least one other subscale. As expected, all total scales significantly correlated with the MASC overall and the Anxiety Disorder Index, as they both are tabulated with items from each of the other scales. These scale intercorrelations represent a positive finding because they indicate a general relationship between the items and that the children are consistently reporting on multiple dimensions of anxiety. This means that even though most of these children are subclinical in their levels of anxiety they still report being affected by a variety of dimensions of anxiety. One hypothesis of the current research specifically focused on the physical/somatic symptoms of the anxiety measure. Children did report physical/somatic symptoms, although they did not self-report them as an overall large concern according to the

MASC. It is however noteworthy that the Physical Symptom total on the MASC significantly correlated with almost all other MASC subscales, excluding Harm Avoidance. Harm avoidance may be different because it is a scale which focuses solely on checking behaviors and obedience. These behaviors may have many causes including anxiety, normative wariness of strange, or threatening people/places. In this urban sample, children may report harm avoidance even when they are not clinically or subclinically anxious because they are living in an environment in which harm avoidance can be a necessary coping mechanism.

No gender differences were found between boys and girls at risk for anxiety in the current research. This finding seems to contrast with the majority of the current literature on childhood anxiety (Beidel et al., 1991; Egger et al., 1999; Lewinsohn et al., 1998). Previous research has emphasized that in a normative sample girls tend to score higher on anxiety measures than boys, and this distinction can be seen as early as age six (Lewinsohn et al., 1998). The lack of gender differences in the current research may have occurred for multiple reasons, the first being the sample size. However, there may be other explanations for the lack of gender differences. The children in the current research were children who had already been identified as being at risk for developing an anxiety disorder. The chances of girls scoring higher on the MASC scale may be lower when they are being compared to boys who have self-reported as being anxious. Also, few of the children in the current sample were clinically anxious. This is an expected finding because the prevention program at the University of Rhode Island specifically focuses on children who are at risk. If children scored in the clinical range during the first assessment, conducted months in advance, they would have screened out of the program and referred to services. It is possible that gender differences are less noticeable once clinically anxious children are removed from the sample.

Analyses of the relationship between parent and children's reports of anxiety symptoms revealed very poor agreement. It appears that using only parent report, and not integrating child reports, to detect risk for anxiety would have yielded a very different group of "at risk" children. Analysis showed no correlation between children's reports of anxiety and somatic symptoms and parent's reports of anxiety, somatic symptoms, or internalizing symptoms. The overall trend, although it did not reach significance, was actually a negative correlation between these variables. This finding alludes to the possibility that parents and children are not only reporting different symptoms, but they are reporting in opposite directions. This finding demonstrates how difficult it can be for parents to catch internalizing symptoms. It also strengthens support for integration of parent and children's reports when screening for at risk children.

Anxiety and Self-esteem

This research did support previous studies in finding a clear correlation between high anxiety scores and low self-esteem scores across a wide variety of subscales. Of particular note, Social Anxiety significantly negatively correlated with all aspects of the self-esteem scale including: Scholastic Competence, Social Acceptance, Athletic Competence, Physical Appearance, Behavioral Conduct, and Global Self-Worth. This suggests that high levels of social anxiety can erode a child's self-esteem across a variety of domains, even domains that might be considered nonsocial. This significant correlation between social anxiety and self-esteem scales is important to emphasize because peer relations are incredibly important in the elementary school years and children tend to base their self-worth on approval from their peers (Rudolph, Caldwell & Connelly, 2005). Many activities in a child's day include social aspects in everything from team sports to classroom learning. The threat that social anxiety

may have on self-esteem is reflected in the current research. Helping at risk children by enhancing their social skills may not only help alleviate some of their social anxiety but increase their self-esteem across a wide range of social and nonsocial domains as well.

There was also a significant negative correlation between the Physical Symptoms scales on the MASC and the self-esteem scales of Scholastic Competence, Social Acceptance, Athletic Competence, and Physical Appearance. This indicates the possibility, as with social anxiety, that physical anxiety symptoms may influence a child's self-esteem broadly as well. It may be that the physical sensations that anxious children feel affect how they value themselves and their abilities. Children with somatic sensations are able to sense that there is something physically wrong with them, without necessarily being able to comprehend what exactly the problem may be. Overall, there was a clear correlation between high anxiety scores and low self-esteem scores, especially in the context of social anxiety and physical symptoms.

Perceived parenting behavior, anxiety, and self-esteem

Another key goal of the present investigation was to examine perceived parenting behavior from the perspective of children at risk for anxiety. There were some interesting findings in this domain, both positive and negative. The perceived parental support measure was broken down into three subscales: acceptance, behavioral control, and psychological autonomy. Behavioral control (i.e. a parent who is strict, always telling their child what to do, where to go, or how to behave) was most strongly related to childhood anxiety in this at risk sample. Behavioral control was significantly negatively correlated with the Anxiety Disorder Index (ADI) score. The ADI score is similar to the total MASC score because it is tabulate by using a few items from each of the other scales. This suggests that children in this sample

who perceive their parents as strict self-report themselves to have higher anxiety than children who did not report their parents to be strict. This finding is consistent with a great deal of previous literature in regards to children's anxiety and parental overcontrol. For example, a previous study conducted by Gaylord et al. (2003) highlights a significant relationship between anxious children and parental overcontrol. They suggest that the relationship is partly due to the lack of control children feel in their own lives as well as the basic fact that parents and children do not perceive parental behaviors in the same way. The miscommunication between parents and children may contribute to children's internalizing symptoms.

Children's perceptions of parental behavior were also significantly correlated with dimensions of the self-esteem scale. Children's perceptions of psychological autonomy were significantly positively correlated with social acceptance and behavioral conduct. This suggests that children who feel their parents grant them a certain sense of psychological autonomy score higher on the self-esteem dimensions of social acceptance and behavioral conduct.

It is interesting to note what did not correlate between parents and children's perceptions of parenting. There were no significant correlations between any of the parent reports of parental behaviors and child reports of parental behavior. In fact, the children's report of perceived psychological autonomy negatively correlated with all three subscales of the parent's perception of their behaviors. This suggests that while parents may feel they are giving high acceptance and high psychological autonomy, children are perceiving these behaviors as a lack of psychological autonomy. The negative trend between high behavioral control and low psychological autonomy suggests that parents who are overcontrolling are

creating in their children a sense that they are not allowed to think for themselves. The finding of incongruencies between parent and child report is consistent with previous research (Silverman & Eisen, 1992).

Potential Moderating Effects of Parenting Behavior and Somatic Symptoms

A final goal of this research was to investigate the potential moderating effects of perceived parental behavior and somatic symptoms on the relationship between anxiety and self-esteem for children at risk. Unfortunately, due to the limitations of the sample size, it was difficult to conclude whether or not perceived parental behavior or somatic symptoms had a moderating effect. To test for potential moderating effects, parental acceptance (high versus low) and anxiety levels (high versus low) were used as independent variables in analyses of self-esteem. The analyses showed that children who scored high on anxiety had lower self-esteem than children who scored lower for anxiety. This was found for all self-esteem scales: Scholastic Competence, Social Acceptance, Athletic Competence, Physical Appearance, Behavioral Conduct, and Global Self-Worth. However, none of the analyses showed an interaction between parental acceptance levels and anxiety level. It is possible that the sample size did not allow for detection of acceptance by anxiety group differences in self-esteem.

A second set of analyses examined parental acceptance (high versus low) and anxiety levels (high versus low) as factors influencing somatic symptoms. These analyses did confirm the previous correlational findings that children with higher anxiety levels reported more somatic symptoms. However, there were no interactions between parental acceptance level and anxiety level. It is unfortunate that there were no significant findings to support a theory of the moderating effects of perceived parental behavior and somatic symptoms. The

significant correlations between self-esteem and anxiety, self-esteem and perceived parental behavior, and anxiety and perceived parental behavior, suggest the possibility of a moderating role. If a moderating role had been found this could inform future prevention work with at risk children. Moderating factors of perceived parental support or somatic symptoms could have generated the empirical evidence that would help support the enhancement of prevention and intervention techniques. Being able to target specific variables to which at risk children are more vulnerable could strength any prevention process. The limited sample size may have contributed to the lack of findings. This leaves room for future research, with larger sample sizes, to examine these potential moderating factors more in depth.

Limitations

As previously noted, the sample size of the current research severely limits the conclusions that can be drawn from the present study. This limited sample size was due to a variety of variables. For example, organizing between multiple elementary schools and having to accommodate the schedules of parents, children, teachers, and investigators, proved to be a very time consuming task. This assessment process did not appear to be a top priority for a majority of the parents and teachers involved. This issue has generated a great deal of discussion. One of the possibilities may be that children who are anxious are not a priority because they are internalizing, not acting out. The school psychologist at this investigator's primary elementary school commented that if we were researching any of her children with conduct and behavior problems parents and teachers would have been a lot more receptive. It is also noteworthy to mention that many of the elementary schools are in urban areas. Many of these children come from working class families where parents cannot

take the time off for assessment interviews, most of which were scheduled during the school day. At this investigator's principal elementary school, at least three parents decided they would not be able to come in and participate in the assessments, and pulled their children out of the program. Recruitment was also challenging because fewer children met criteria for being at risk for an anxiety disorder at each school than was originally projected. This led to fewer children being assessed. Research on children at risk for anxiety is still relatively new. Lessons learned from studies such as this one may help inform future prevention and intervention research efforts.

A larger sample size may have allowed for a more in depth analysis. The cell sizes were too small to explore moderating effects in this current research. Also, many of the correlations were notable in size, but not significant due to low power. Of course, with a small sample there is more potential for results to be biased by outliers or poor reporters. Other limitations include the study's reliance on self-report. Self-report data collection can be influenced by demand characteristics, especially when working with children. The participant may think, "I want to please the researcher or I want to hide my true feelings." This may be a factor not only when a child self-reports but with adults as well. In addition, a third party rating could have helped explain discrepancies between parent and child report (e.g., observations of parenting behavior). Another limitation is the fact that the data were collected by various researchers. This may be influential because the investigators may have administered the assessments differently.

Future Research

Future research could be done with the current study using a larger sample size. There is still a great deal to explore on this topic. There are questions from this study that may be

answered better with a larger sample size. For example, were the incongruencies between child and parent reports of parental behavior due to the sample size, or are parents as a whole not noticing important symptoms in their own children? Future research may also want to incorporate the socioeconomic status of the family in comparing child and parent reports. This is by no means meant to imply that parents of lower socioeconomic status are out of touch with their children. It may be a possibility that parents who work all day and are consumed with simply trying to provide for their family miss subtle cues that are trademarks of internalizing disorders. The incongruence, and trend towards negative correlations, between parent and child reports on both parental behavior and anxiety symptoms warrant further investigation.

Further research could also focus on the buffering effects that self-esteem may have on anxiety. Research has demonstrated with adults that self-esteem can serve as a buffer for anxiety (Pyszczynski et al., 2004) but this has yet to be adequately demonstrated in children. Although this research takes a first step by illustrating the correlation between high anxiety and low self-esteem, more empirical evidence is necessary to establish a relationship. Through this current research, there is no way to assess whether low self-esteem led to anxiety or anxiety led to lowered self-esteem. Because this research is correlational no statements can be made in regards to causation or to which variable predicts the other. The only true conclusion that can be drawn is that there is a general relationship in these at risk children, between their self-reports of anxiety and their self-reports on self-esteem. In addition, there is a general relationship between certain dimensions of a child's perception of parental behavior and anxiety, as well as self-esteem. This research also supports previous research in finding that there is a correlation between anxiety and somatic symptoms.

Further research with children is always a challenge because they cannot participate in some of the studies done on adults. For example, the Greenberg et al. (1992) method used with adults (boosting participant's self-esteem and then subjecting them to death scenes to create anxiety) could not be used with children. A different avenue that might be followed may be studying children with high self-esteem, analyzing why (if the theory of low anxiety and high self-esteem holds true) they do not get anxious. Although it may not immediately solve the question of which comes first, low self-esteem or high anxiety, it may generate some ideas as to how to help children whose self-esteem is already threatened.

Importance of Findings

This research is important because it clarifies the picture of children at risk for anxiety. Very little is known about these children, and about key aspects of their psychological adjustment. Increasing our understanding of at risk children may lead to an eventual decrease in children with clinical level anxiety disorders. By generating more empirical evidence researchers will not only be able to focus their research accordingly, we may be able to offer evidence in support of certain prevention techniques for children at risk for anxiety. For example, the clear correlations between social anxiety and self-esteem may indicate that prevention and intervention programs should incorporate techniques that help boost children's social comfort and social skills, in order to maintain a child's self-esteem. Furthermore, empirical evidence may support extending prevention and intervention programs past the child at risk to offer techniques for the parents. The current research, as well as previous research (Gaylord et al., 2003), found that children who rate their parents high on behavioral control self-report themselves high in anxiety. The current research supports previous research that has found that children who do not feel they are in control are

more likely to feel anxiety. Prevention and intervention techniques could educate parents on ways to allow their children to feel they have more control in their own lives. This could start with something as simple as a discussion and negotiation for a new bedtime. If children feel they have some sort of say, even if it is simply adding another 10 minutes before bed, they may begin to feel they can contribute and collaborate with their parents about their own lives. Parents who control everything in their child's life, even if they do it with the welfare of the child in mind, may become a risk factor rather than a protective factor. Also, educating parents on potential symptoms of anxiety disorders may help identify at risk children before they become clinically anxious. Parents could also be assisted in learning communication skills to help them talk to their children about perceptions of parental behavior and their sense of autonomy.

This research also highlights the fact that physical/somatic symptoms require attention in terms of children's anxiety disorders. Physical/somatic symptoms not only significantly correlated with many subscales of the anxiety measure, but with many scales of the self-esteem measure as well. These physical symptoms are not only influential; they often go undetected by parents. Because somatic symptoms are often associated with internalizing disorders (Beidel et al. 1991; Puskar, 2001) it is important that children at risk for anxiety disorders are made aware that they are not alone in their physical reactions to anxiety. Illustrating the importance of physical symptoms would not only help anxious children, it may help parents and caregivers by creating the awareness that if a child is having a somatic reaction, it may be due to anxiety.

In conclusion, although the current research was not able to achieve all of the goals laid out at the beginning, it has supported previous research and highlighted areas of interest

for future research. The significant correlation between social anxiety and multiple aspects of self-esteem is a key finding because it emphasizes how anxiety in children can affect self-esteem across a broad spectrum, even in an at risk sample. The topic of understanding children at risk for anxiety is important because identifying children before they become clinically anxious will help them before their symptoms strengthen and increase. More research needs to be conducted to fully investigate which variables can be risk, or even protective, factors. Being able to provide more empirical support on variables that can lead to an anxiety disorder will offer a stronger basis for more elaborate prevention and intervention techniques. A focus on children at risk for anxiety is also important because of the reoccurring theme that parents and teachers often miss the subtle cues that a child is becoming anxious. Caregivers may not understand the repercussions that anxiety can have on a child's everyday life. A wider breadth of information will offer parents and teachers more opportunities to learn about anxiety and will make them a stronger support system for children who are at risk for anxiety.

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Appendix A

Appendix B

Appendix C

Appendix D

Appendix E

Appendix F

Appendix G

Appendix H
Appendix I

Appendix J