Mindfulness for Stress and Anxiety:  
Adolescent Development and Risk Factors Impacting Stress and Anxiety Inside and Outside of School  
A Literature Review Paper  
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Abstract

This literature reviews published journals and texts that discuss research relating to mindfulness interventions for stress and anxiety during adolescence. Research on the adolescent brain shows growth is happening well past childhood, contributing to the way adolescents process and react to emotions and situations (Blakemore, 2008). Articles used for review discuss stress and anxiety as a key risk factor in societal and academic pressures that students face both inside and outside of the education system. Support for Mindfulness as an intervention includes review of the incorporation of the Nurtured Heart Approach, Response to Intervention Model, and Yoga Calm as curriculum recommendations for helping to reduce stress and anxiety in adolescent students. Lastly, the American School Counseling Association national model provides recommendations for School Counselors incorporating mindfulness interventions to reduce anxiety and stress levels and promote overall well-being for students.

*Keywords: Adolescence, Brain Development, Stress, Anxiety, Mindfulness*
Dedications

This paper is dedicated to my sister for believing in me and giving me confidence to pursue my passion, my parents for teaching me about the importance of helping others, and to students who struggle with stress and anxiety that can benefit from an incorporation of a mindfulness curriculum.
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Mindfulness for Stress and Anxiety

In recent years we have seen a growing concern for rising rates of anxiety in adolescent students. Anxiety disorders are among the most common psychiatric disorders affecting children and adolescents (Albano, Chorpita, & Barlow, 2003). Considered to be a problem that is internalized in students, anxiety is less noticeable than an externalized problem would be. Thus, student anxiety is not easily identified and commonly overlooked in education. It can be difficult to recognize anxiety in youth in a school setting because of the complexity of the environment. The school setting, is however one of the most important places to address anxiety and an ideal location for preventative interventions (Tomb & Hunter, 2004). If left unaddressed, stress and anxiety could potentially turn into an anxiety disorder.

Anxiety disorders are recognized by the Diagnostic and Statistical Manual of Mental Disorders (DSM-V) as being characterized by excessive and persistent worry or suffering and may include restlessness, avoidance, sleep and eating disturbance, affected concentration, irritability, crying, or clinging (American Psychiatric Association, 2013). They can stem from reactions to a situation or an object causing significant functional impairment, in short their anxiety can affect and interfere with day-to-day life tasks. Common symptoms that are associated with anxiety include: shortness of breath, rapid heartbeat, feelings of helplessness and disappointment, difficulty concentrating, and thinking negatively (Anxiety and Depression Association of America, 2015). In adolescence, symptoms can range from mild to severe depending on the level of anxiety the student is experiencing. Tips to help manage anxiety include being prepared, maintaining a positive attitude, practicing relaxation techniques, and visiting your counselor (Anxiety and Depression Association of America, 2015).
There are certain stimuli or events that can cause stress and anxiety for adolescent students. Examples of these stressors include factors that adolescents are dealing with in and out of school. Normative stressors are in school factors for adolescents and include developmental challenges, puberty, school transitions, and increased academic demands. While, non-normative stressors and daily hassles are related to out of school risk factors include divorce, parent child conflict, and chronic stressors (Suldo, Shaunessy, & Hardesty, 2008). These stressors are the most common risk factors associated with stress and anxiety for adolescents.

The literature review looks at brain development going on in education during adolescent years. Adolescence is a developmental period when youth may be particularly vulnerable to the negative effects of stress (Suldo et al., 2008). The development that is taking place during this period in relation to pressures that students are facing both in and out of school can causes stress and anxiety levels to be heightened. Adolescent development is characterized by growth in physical, social, emotional, and cognitive functioning (American Psychological Association, 2002). Research on the brain during adolescence is in its early stages, though findings by Sarah Jayne Blakemore and Suparna Choudhury have found that adolescents display an important deal of growth cognitively during adolescence (2006). More specifically social cognitive development in the prefrontal cortex is in a growth period during adolescence. An example of social cognitive growth taking place during adolescence is self-awareness (Blakemore & Choudhury, 2006). Blakemore and Choudhury go on to further state that accumulating new social experiences, such as entering a new school, can influence the development of social cognitive processes (2006).

Mindfulness is defined as the state of being attentive and aware to what is taking place in the present (Brown & Ryan, 2003). Since mindfulness involves receptive attention to
psychological states, in less mindful states emotions may occur outside of awareness or drive behaviors before a person clearly acknowledges them (Brown & Ryan, 2003). In adolescence it is important to focus on the values of being mindful for adolescents. This includes, promoting awareness to emotions, and providing skills used to manage the emotions. Research being conducted on mindfulness in adolescence has been developing further, as of recently. Greco, Baer, and Smith’s use of the Child and Adolescent Mindfulness Measure (CAMM) assesses mindfulness and promotes skills for adolescents, by focusing on present centered awareness and a nonjudgmental stance toward internal experiences (2011). While, a study utilizing the Five Facet Mindfulness Questionnaire (FFMQ) focuses on the levels of mindfulness in adolescents and how they react to negative experiences (Ciesla, Reilly, Dickson, Emanuel, & Updegraff, 2012). These uses of measurement for mindfulness are helpful in identifying and promoting skill usage. Mindfulness is believed to promote well-being, and curriculum for students would be a considerable solution to helping reduce rates of stress and anxiety due to academic and social-emotional risk factors.

**Adolescent Development**

Adolescence is typically portrayed as a time in life when children are transitioning into teenagers. The most common changes that are observed during teenage development stages are the physical changes, while mental changes in brain development are often overlooked (American Psychological Association, 2002). Changes in brain development should not be downplayed; in fact they are some of the most important changes that are going on during adolescent development. Laurence Steinberg noted a main observation about brain development during adolescence; this is, that most development taking place during this period is related to brain regions and systems that are key to the regulation of behavior and emotion, and to the
perception and evaluation of risk and reward (Steinberg, 2005). Development contributes to how we as humans learn, show emotions, interact with one another, and physically develop.

Adolescence, typically known as a range of ages 10-19 years, can be defined in physical, social, emotional, and cognitive development terms (American Psychological Association, 2002).

The four main areas of development are during adolescence are: physical, social, emotional, and cognitive. Social development relates to how adolescents interact with others. Peer relationships generally become very important around this stage to establish independence from parents (American Psychological Association, 2002). School is an important part of an adolescent’s life, it is where they engage with their peers and develop skills for learning. An adolescent’s social development very much relates to their outer environment, or where they feel the desire to belong. For example, family atmosphere and peer relationships generally contribute to this outer environment. Depending on where the student finds the need to belong, they form their social tasks based off of those similar means that they felt in belonging (Mosak & Maniacci, 1999.) Emotional development relates to how adolescents manage feelings and are able to portray them to the outside world. This is important during adolescence to developing a sense of identity to contribute to self-concept and self-esteem. All areas of development are important in preparing adolescents for growth and learning before adulthood (American Psychological Association, 2002).

During teen years, physical development typically includes going through puberty and changes in appearance, this includes growth in height, body shape, and sexual maturation. Social development relates to peers, family, school, work, and community. While, emotional development during adolescence includes developing a sense of identity in relation to others, and learning to manage stress and emotions. Cognitive development is related to the changes
happening in the brain, including the ability to reason effectively, problem solve, think abstractly, reflect, and plan for the future (American Psychological Association, 2002). Research being conducted on cognitive functioning during adolescence shows that important development is continuing to take place well past childhood.

Cognitive Brain Development

Contrary to beliefs that most brain development happens in early childhood, research has shown that brain development continues to progress throughout adolescent years (Blakemore, 2008). This makes academic learning and education all the more important during adolescence. The most critical parts of cognitive development happening in the brain are located in the prefrontal cortex. The prefrontal cortex area of the brain is located in the front of the skull and controls much of our decision-making, self-awareness, and social interaction processing (Blakemore, 2012). During adolescence the prefrontal cortex is changing dramatically and still in its developmental stages. Important changes in brain structure and function, including regions and systems associated with response inhibition, the calibration of risk and reward, and emotion regulation, is being researched during adolescence (Steinberg, 2005).

When children are born they are born with just as many neurons as adults. Throughout the first few years of human life many changes in development and connections within the brain are taking place. Though neurons are growing in the brain during early years, the connections or wiring between neurons are important in the development of learning (Blakemore, 2012). Cognitive brain development begins at an early age, most of it taking place just before ages 5 or 6; there is however, a second wave of that takes place during the adolescent years. The neurons that are growing and connections that are forming in the early years of life are the basis in development for learning. It is the elimination of rarely used connections and strengthening of
frequently used connections that causes synaptic pruning, which allows us to fine-tune our cognitive networks (Blakemore, 2012). The brain relies on neurotransmitters to relay messages from one cell to another. Synapses, or the spaces between cells, are formed early on in cognitive brain development. During adolescent years, though most cells are already formed, the brain is pruning the earlier synapses connected to make way for strengthening the neuron pathways (Blakemore, 2012).

While the pruning and strengthening of the synaptic connections are happening, the development of the frontal cortex is also growing at a rapid rate during adolescence. The frontal cortex plays a role in important cognitive functions, such as the ability to make plans, understand other people, and inhibit behaviors (Blakemore, 2008). There are different areas of cognitive functions that improve differently than others; for example, planning and inhibiting behaviors improves more rapidly. Cognitive changes during adolescence give adults an opportunity to help guide them to make their own rational decisions. The level of decision-making during adolescence is highly influenced by risk taking behaviors, due to the changes in the prefrontal cortex (Blakemore, 2008). Moral development is also an important part of the cognitive development; this includes laying the groundwork for moral reasoning, honesty, and pro-social behaviors (American Psychological Association, 2002).

Studies of social cognition also demonstrate the ways in which adolescent thinking about others becomes more abstract (Eisenberg & Morris, 2004). Moral development refers to a sense of values and ethical behavior. This type of development during adolescence lays the groundwork for moral reasoning, honesty and pro-social behaviors (Bernabei et al., 2009). During this time of life when adolescents are forming their identity they are influenced by their peers, it is important that peers who show pro-social behavior are surrounding them. Pro-social
behaviors can include examples such as, helping, volunteering, or caring for others. This type of moral development is rooted in Adlerian principles and supports the idea of promoting pro-social behavior through taking a social interest in others and the community.

Development in research in cognition during adolescence comes in the form of the study of social context in relation to the development of judgment, decision-making, and risk taking (Steinberg, 2005). New perspectives on adolescent cognition, emphasize that adolescent thinking in the real world is a function of social and emotional, as well as cognitive processes, and the ways in which the intellectual changes of adolescence effect social and emotional development (Keating, 2004). A study conducted by Steinberg found, adolescent reasoning or problem-solving using measures of intellectual functioning might provide better understanding of adolescents’ potential competence than of their actual performance in everyday settings, where judgment and decision-making are likely affected by emotional states, social influences and expertise (Steinberg, 2004). Therefor, studies of actual risk-taking, for example risky driving, unprotected sexual activity, etc., indicate that adolescents are more likely to make risky decisions than are adults (Steinberg, 2005).

Decision-making being influenced by risk taking behavior can fall under two different categories: healthy risk taking and reckless risk taking. Reward can be heightened by both categories depending on the reward that is output. Healthy risk taking includes taking chances outside of your comfort zone, in curriculum provided by Top 20 Teens authors Barnabei, Cody, Cole, Cole, & Sweeney (2009) state “adolescence who are in the top 20s would understand that there is a need for living both inside and outside of your comfort zone” (p. 75). Healthy risk taking examples include, taking chances outside of your comfort zone could include asking a teacher for help or trying out for a team. This can help you to develop your best potential and
help overcome fears, and lead to positive developmental growth (Bernabei, Cody, Cole, Cole, & Sweeney, 2009). On the opposite end of the spectrum of healthy risk taking behavior, there is reckless risk taking behaviors. Reckless risk taking is behavior is categorized as behavior that causes you to pretend or be your false self. According to Bernabei et al., reckless risk taking is induced by five dominant reasons: Invulnerability or the belief that anything bad won’t happen to them, fear of missing out, other people’s opinions, thrill seeking/it’s fun, and bonding in pain (2009). Invulnerability is an important factor in the cognitive development of risk taking, by then the prefrontal cortex is still developing and the adolescent brain is learning new strategies to sort the positive from the negative rewards of risk taking behaviors. Attention and acceptance are factors in reckless risk taking that coincide with the reasoning to be liked based on other people’s opinions; this can cause adolescents to engage in reckless risk taking behavior (Bernabei et al., 2009).

What lies at the core of adolescent cognitive development is the attainment of a more fully conscious, self-directed and self-regulating mind. This is achieved principally through the assembly of an advanced ‘executive suite’ of capabilities, rather than through specific advancement in any one of the other elements (Steinberg, 2005). A fully conscious and self-regulating mind is the key to developmental awareness taking place at this time in adolescence. Keating notes that much of the underlying action is focused on specific developments in the prefrontal cortex, but with an equally significant role for growing links to the whole brain. This process of formation is supported by rapid connectivity, particularly in communication among different brain regions, and by significant synaptic pruning, especially in frontal areas that are crucial to executive functioning. Changes in executive functioning are believed to include long-term planning, metacognition, self-evaluation, self-regulation and the coordination of affect and
cognition (Keating, 2004). In Blakemore and Choudhury’s research on development of the adolescent brain they study the developments of executive functioning and social cognition (2006). This is a relatively new area of study that is rapidly gaining interest in education. Executive functioning during adolescence sites selective attention and decision-making as being important in cognitive growth. While, social cognitive growth incorporates self-awareness and theory of mind (Blakemore & Choudhury, 2006). The importance of cognitive growth and synaptic pruning is recognized in adolescence as progressing past childhood and continuing into early adulthood.

**In and Out of School Stress and Anxiety Risk Factors**

Stress is a risk factor for mental health disorders, which have been estimated to effect approximately one in five children ages 9 to 17 years (U.S. Department of Health and Human Services, 1999). Anxiety and stress rates have seen an increase over the past few years in the student adolescent population. If not addressed, adolescents are at risk for compromised physical and mental health as adults (Suldo et al., 2008). Stress is defined in multiple ways through use of medical, environmental, and psychological models. The medical model of stress is characterized by a response to an environmental stimulus; examples include increased heart rate, elevated blood pressure, and presence of hormones and neurotransmitters. The environmental model is defined by stress as external to an organism; this type is typically measured using stress inventories. External stress has been linked to negative outcomes such as anxiety, depression, and aggression. Also included is academic achievement, and compromised life satisfaction (Suldo et al., 2008). The psychological model focuses on stress, as it is perceived through external stress, bodily reactions, and cognitive, emotional, and behavioral response.
There are many factors that can contribute to heightened levels of stress and anxiety for students, these include risk factors that are found both inside and outside of school. Risk factors in school include academic pressure, such as earning good grades, performing well on a test, and participating in school activities. In school risk factors such as academics are a major part of pressures adolescents are dealing with that can cause them stress or anxiety. Sources of external stress that contribute to in school risk factors for adolescence are considered normative stressors and daily hassles. Examples of normative stressors include school transitions and increased academic demands, while daily hassles include academic pressure (Suldo et al., 2008). With education placing an importance on testing and grades to prepare for college readiness, adolescents are preparing earlier on in their school years. By focusing on different areas of academic pressures, such as testing or coursework, the literature can give helpful solutions for management skills. Test anxiety is described as a set of physiological and behavioral responses that accompany concern about possible negative consequences or failure of an exam or a similar evaluative situation (Ergene, 2003). Behavioral interventions are categorized as most common with various treatment methods being used for test anxiety, such as relaxation training, anxiety management training, stress reduction training, study skills, etc. (Ergene, 2003).

Normative stress combined with daily hassles for students can be a predictor of mental health. Adolescent self-esteem levels directly correlate with stress and anxiety, whether we perceive ourselves positively or negatively plays an importance role in how we experience stress and anxiety levels. Research conducted by Pincus and Friedman showed evidence that adolescents change their coping efforts based on situational demands (2004). The study composed of adolescents aged 11-14, were analyzed by listing coping strategies they would use based on two different stressors: medical and academic related. Results found that problem
focused strategies were used to cope with the academic stressor, and emotion focused strategies were used to cope with the medical stressor.

Out of school risk factors can include pressures from peers and family members. These risk factors can affect day-to-day life if skills are not utilized in learning to manage stressors. Out of school risk factors for adolescents include non-normative stressors and daily hassles. Examples of non-normative stressful events include divorce, while daily hassles include parent-child conflict (Suldo et al., 2008). Peer pressure can be considered an out of school risk factor. Adolescents are forming and emphasizing relationships with their peers during this time in their life, and peer influence has a great effect on them. Influence is a powerful factor in teen culture that changes the action of thinking of another person (Bernabei et al., 2009). Students dealing with peer pressure and at risk for anxiety could misinterpret messages of peer influence. For example, believing that they need to act a certain way to be liked could cause stress, if the adolescent is interpreting a negative message as a true message. For students that are questioning who they are around this age span, peer influence is a big factor as to how they begin forming their identity (Bernabei et al., 2009). A study conducted on the association of stress and emotional states in adolescents showed everyday stress is related to negative emotional states. When controlled for other variables, stress of peer pressure and adult responsibility were positively related to state anxiety (Moksnes, Moljord, Espnes, & Byrne, 2010). Self esteem was negatively related to state depression and anxiety, controlling for the effect of stress. Thus the results support the positive role of self-esteem in association with adolescents’ psychological health (Moksnes et al., 2010). We can conclude from the study that risk factors out of school, such as peer pressure can contribute to anxiety for adolescent students.
Adolescents who practice awareness know how to recognize the difference between good influence and influence that is pushing them in the wrong direction, they know that they are not completely controlled by peer influence and are responsible for making their own decisions (Bernabei et al., 2009). For adolescents who are more susceptible to stress and anxiety, negative peer influence can heighten stress and anxiety levels. It is important to note that academic and peer pressure can be a stepping stone for how adolescents who experience stress and anxiety manage and grow from it through becoming self motivated and emotionally aware.

**Mindfulness Research**

Mindfulness research over the past two decades has focused primarily on adult populations; however, in recent years these approaches have been adapted for use with children and adolescents (Greco & Hayes, 2008). Among some of the mindfulness scales that have drawn recognition to more recent research include the Mindfulness Attention Awareness Scale, the Avoidance and Fusion Questionnaire for Youth, and the Child and Adolescent Mindfulness Measure.

The Mindfulness Attention Awareness Scale (MAAS) was developed to assess individual differences in the frequency of mindful states over time, and focused on the presence or absence of attention to and awareness of what is occurring in the present (Shapiro & Schwartz, 1999). The development of mindfulness scales has helped to identify adolescents who would benefit from support for their stress and anxiety. A study conducted by Brown and Ryan assessed validity and used the MAAS to conduct studies for relations between mindfulness and well-being (2003). Results proved the MAAS to be a reliable method of measurement and value the study of self-regulated behavior. Though the MAAS form of measurement is used for an adult population,
it shows importance of the use of mindfulness to lower levels of mood disturbance and stress (Brown & Ryan, 2003).

Most mindfulness measures are made to be utilized for adult population and very few have been validated to use with adolescent population. Research on mindfulness measures as they relate to adolescents, are more developmentally appropriate and use less complex vocabulary (Greco, Baer, & Smith, 2011). Examples of measurement methods appropriate for adolescents include use of the Avoidance and Fusion Questionnaire for Youth (AFQ-Y), which is a youth report measure marked by psychological flexibility, or situational emotion and behavior flexibility (Greco, Baer, & Smith, 2011). This method is developmentally appropriate for adolescents and considered reliable for youth over 9 years of age. Results from the self-report questionnaire show that acceptance based process is consistent with research, showing that youth can reliably report on internal experiences (Greco, Baer, & Smith, 2011).

The Child and Adolescent Mindfulness Measure (CAMM) is among the first articles to describe the development and validation of a child report measure of mindfulness skills (Greco, Baer, & Smith, 2011). The CAMM focuses on present centered awareness and a nonjudgmental stance toward internal experiences by use of expert and child feedback to guide item development. Results showed that scores on the CAMM were positively correlated with quality of life, academic competence, and social skills; proving it a useful measure for mindfulness skills for adolescents (Greco, Baer, & Smith, 2011).

Mindfulness measures for adolescents can benefit the production of interventions in mindfulness. By using a scale, such as the examples previously mentioned, the reliability and awareness of internal experiences can help aid in the reduction of stress and anxiety.

**Mindfulness Interventions**
Mindfulness based interventions are becoming increasingly popular and the literature that supports them is growing (Greco, Baer, & Smith, 2011). Mindfulness is defined as the process of being aware and attentive to what is taking place in the present (Brown & Ryan, 2003). Review of research on mindfulness measurements shows, the practice of being mindful can help with the reduction of stress and anxiety for adolescent students. For adolescents with stress and anxiety this can be especially important to practice and incorporate into school curriculum. I believe it would be important as a Professional School Counselor to implement a program that promotes the awareness of mindfulness for students with stress and anxiety. Adolescents can benefit from the practice of mindfulness by implementing parts of a mindfulness curriculum, for example yoga calm, which was developed to help reduce stress and engage the body and mind for learning (Gillen & Gillen, 2007). If implemented and practiced throughout the school year mindfulness focused curriculum would help students to become more aware of judgments, patience, acceptance, and letting go (Hyland, 2009). Hyland (2009) goes on to say, “Mindfulness prepares us for a deeper and richer learning by letting go of self-obsession and promoting a fuller engagement in day-to-day life,” (p. 130). By letting go of self-obsession and control this can help to foster feelings of encouragement for teens feeling a sense of helplessness caused by stress and anxiety.

According to Dreikurs, instilling encouragement in children and teens is the most important aspect of child raising (1964). He goes on to say, “each child needs continuous encouragement just as a plant needs water. They cannot grow and develop and gain a sense of belonging without it,” (Dreikurs & Soltz, 1964). Without encouragement, children and adolescents would feel discouraged and inadequate. In order to regain a sense of encouragement for students struggling with stress and anxiety, Professional School Counselors can provide the
mindfulness skills they would need to succeed. By instilling encouragement in adolescents who are discouraged due to stress and anxiety situations it is important in promoting self-confidence. Encouragement helps with promoting positive feelings such as, being able to do well on or accomplish tasks that may be considered overwhelming. By encouraging positive attitudes and behaviors in students, such as healthy thoughts, educators are empowering them.

There are many different interventions incorporating the use of mindfulness that can help with managing stress and anxiety. A few examples of interventions that would be successful being implemented into a mindfulness curriculum are: nurtured heart approach, yoga calm, and a response to intervention plan. The following interventions are beneficial in fostering mindfulness awareness, encouragement, and a positive well-being for adolescent students.

**Nurtured Heart Approach**

The nurtured heart approach focuses on encouraging positive behavior in children by limiting the amount of attention given to negative behavior to build inner wealth (Glasser & Easley, 1998). Compromised of three different stands that help to support parent development the Nurtured Heart Approach focuses on: refusing to accidentally energize negativity, energizing the positive, and providing and upholding a perfect level of limits (Glasser & Easley, 1998). By refusing to accidentally energize negative behavior this turns attention away from frequent negativity that could lead to damaging self-confidence issues. This leads the focus away from discouragement, and empowers the use of encouragement as recommended by Rudolph Dreikurs (Dreikurs & Soltz, 1964). In the Nurtured Heart Approach there are three different steps for energizing positive recognition: actively, experientially, and proactively (Ahmann, 2014). Actively includes simply noticing or stating the behavior that is observed in a non-judgmental way. In experiential recognition behaviors are learned through experience, for students
experiencing high levels of anxiety emphasizing recognition on effort and positive attitude would increase the value the child feels for the positive behavior. The last step emphasizes energizing positive behavior by being proactive or creating opportunities for children to succeed in, by setting the bar low this can help promote success if the child is feeling particularly down or discouraged. In stand three, upholding levels of limits is important to communicating the standard for desired behavior. Most times during this stage redirection is simply needed to help the child reset or regain control of their behavior (Ahmann, 2014). Through use of implementing the Nurtured Heart Approach as a part of a mindful intervention, a school counseling program focusing on reducing student anxiety can expect see a building of inner wealth for students.

Applied to students struggling with stress and anxiety, an intervention incorporating the Nurtured Heart curriculum would act to recognize and encourage adolescent’s positive behaviors. Creating opportunities for students, who struggle with a negative perspective due to stress and anxiety, can help them to succeed by gaining positive self worth and value.

**Yoga Calm**

Yoga Calm is described as an innovative child education method that reduces stress and engages both body and mind for optimum learning (Gillen & Gillen, 2007). This helps children to focus on the development of emotional intelligence, communication skills, trust and empathy. The program of Yoga Calm incorporates a unique blend of the traditional yoga practices of mindfulness, physical activity, and nervous system regulation with social skills games and counseling techniques (Gillen & Gillen, 2007). The curriculum can be used for a wide range of students, including children and adolescents that struggle with heightened levels of stress and anxiety. The curriculum ranges from 5 to 40 minute processes, includes over 100 different activities and lesson plans, and is designed to be used in school, home, and therapeutic settings.
Techniques that help for students using the curriculum include breathing and mindfulness techniques, yoga poses and sequences, social and emotional games, relaxation techniques, and wellness lessons (Gillen & Gillen, 2007). Benefits of using the techniques for students with stress and anxiety can help to calm the nervous system and instill self-confidence.

The reduction of stress, development of social and emotional skills, and a sense of well-being, have corresponding health and academic benefits. Gillen states “teaching adolescents social and emotional skills is proven to enhance the brain’s cognitive functions,” (2007). As previously mentioned, the most important part of brain development during adolescence is happening in the prefrontal cortex. This is where the development in decision-making, self-awareness, and social interaction processing is taking place (Blakemore, 2012). Teaching adolescents the importance of building on social emotional well-being is beneficial to students who experience stress and anxiety. They learn to become more emotionally aware of what they are feeling and are in turn more mindful in knowing how to handle their emotions. The need to reduce stress while being able to create an academic balance is what the Yoga Calm curriculum aims to help educators with (Gillen & Gillen, 2007). School counselors can provide guidance, and social and emotional support for students who are experiencing stress and anxiety.

Yoga traditionally helps to incorporate practices of mindfulness, physical poses, and nervous system regulation with social and emotional skills development (Gillen & Gillen, 2007). We are seeing a shift in education where we are not just concerned with stimulating the child’s mind or cognitive development, but incorporating an approach where the whole child is being served, by connecting mind and body learning practices. Yoga calm is a curriculum that focuses on a whole child approach by connecting social and emotional awareness to breathing, physical
poses, and mindful awareness (Gillen & Gillen, 2007). This type of curriculum has been shown to reduce stress levels.

We know that Yoga has health benefits related to stress reduction and physical health, and overall wellbeing. There has not been much research done previously that has connected yoga and academic development. An in depth exploration of research conducted on the effects of yoga on stress of K-12 students is displayed in a study directed by Michael Brooks. Brooks (2007) looked for the effects of stress that children are experiencing, explaining “academic concerns, family interpersonal problems, and peer relationship troubles” identified as stressors that children are experiencing. Many of these stressors are similar problems for students entering adolescence. Brooks’ study researched the effects of anxiety with a yoga intervention for fifteen, fourth and fifth graders in a predominantly white, upper-middle class school (2007). In the study students took the State Trait anxiety inventory before participating in a 6-week yoga class that met three times per week, for 20-minute sessions. Though there was no statistically significant change, teachers reported that students were seen more engaged in their learning (Brooks, 2007).

In a different study on stress in adolescents, research was conducted on the effects of anxiety by using a yoga workshop for high school students. The environment in which the study took place was an inner-city school in Miami, Florida that was ranked as low achieving (Yoga and Academic Achievement, 2009). 19 high school sophomore students participated in the study, which involved participation in a 40-minute yoga session; this was aimed at helping to manage stress in hopes of attaining better results on the Florida Aptitude Test. Students filled out two post surveys: one right after the exam, and the other two weeks later. The 40-minute yoga session focused on breathing techniques and standing postures. In the responses, roughly 63% of students stated that the yoga workshop was helpful for managing stress before the test. Whereas,
on the second post-test roughly 36% of students agreed with the fact that they would use the breathing techniques they learned from the workshop to help relax before another test (Yoga and Academic Achievement, 2009). We can conclude from the post surveys that two-thirds of the students found the techniques helpful, but only about one-third of students would be likely to use the techniques again.

professional school counselors can benefit from incorporating yoga calm practices into their curriculum by promoting a whole child approach. Whole child approach connects mind and body to learning practices to reduce stress and anxiety. Students can benefit through a better social emotional awareness, connected to cognitive developmental growth during adolescence. Yoga calm can benefit students with stress by equipping them with skills, self-understanding, and confidence to be able to manage and reduce anxiety (Gillen & Gillen, 2007).

**Response to Intervention Model**

The response to intervention (RTI) model is a multi-tier approach that helps with the early identification and support of students with learning and behavior needs (Buffum, Mattos & Weber, 2009). Use of the RTI model is practiced by providing high quality instruction and interventions that aim to match students’ needs, by using students’ learning rate over time and levels of performance to make important educational decisions. RTI is generally composed as a three-tier model that uses research based academic interventions. As the RTI pyramid goes up in height the interventions become more intense and address fewer students. In the model tier 1 is considered the core program, tier 2 the supplemental level, and tier 3 the intensive level. Tier 1 incorporates an all student intervention curriculum implementation; this utilizes a core curriculum that embeds ongoing monitoring for all students. Tier 2 includes targeted interventions for students not making progress in tier 1, this level is considered immediate and
powerful by being systematically applied and monitored. Tier 3 includes intensive interventions for students who did not show progress at tier 2 level, this level is focused on closing the gap and providing individual help (Buffum et al., 2009).

Using an RTI model as an intervention should be set up as a well orchestrated system which is dependent on sustained investment in professional development, engaged administrators, district level support, willingness of staff to comply, and sufficient time and accommodation (Fuchs & Deshler, 2007). A School Counselor would see the importance of receiving support and investing in development to make the RTI implementation successful. When working with an RTI model for curriculum on how to manage stress and anxiety it is important to address all students with a general curriculum then to tailor the curriculum depending on the student’s needs, whether that be through group or individual intervention.

For addressing students with stress and anxiety, an RTI approach focusing on implementing Yoga Calm techniques would be incorporated in school curriculum with the support of other staff. Each level would look different depending on the student needs for stress and anxiety management. On the tier 1 level it would look like a classroom curriculum course teaching how to recognize symptoms of basic stress and anxiety and ways to manage it. A lesson during health class would be ideal to teach stress and anxiety management skills to students. Management skills would include breathing techniques and awareness of onset stress. It would be helpful to incorporate a mindfulness measurement assessment, such as the Child and Adolescent Mindfulness Measurement; this focuses on present centered awareness and nonjudgmental stance toward internal experiences. By students rating their own mindfulness awareness, they are displaying self-awareness. The results would determine if they could benefit from targeted services in mindfulness curriculum. The CAMM has been proven to be positively
correlated with quality of life, academic competence, and social skills; proving it a useful measure for mindfulness skills for adolescents (Greco, Baer, & Smith, 2011). Students at the core program could be given an option to participate in Yoga Calm sessions after school, if they feel they could benefit from mindfulness skills and techniques.

Students identified as rating low on the CAMM, or rating low in mindfulness awareness, would be considered for tier 2 level of targeted intervention. Once the students are identified that could benefit from targeted mindfulness curriculum services, a group setting can be formed that focuses on teaching techniques and curriculum from the Yoga Calm curriculum. A program adequate for students at risk of anxiety would include practice of curriculum at least once a week, and would be conducted for at least a quarter of the school year. For adolescent students this would be ideally held during advisory, or as a shortened classroom session. The curriculum would utilize the blend of breath work, physical activity and social-emotional games to help ease anxiety and provide tools for coping with anxiety and emotions (Gillen & Gillen, 2007).

Students that are not showing progress with mindfulness interventions at the targeted level, would be moved to an intensive services level. The main difference between the tier 2 and tier 3 level is the frequency, duration, and progress monitoring of the intervention given (Buffum et al., 2009). The intensive level would ideally be individual or in some cases small group services. This would be given over the full length of the school year and at least 2-3 days per week, depending on individual needs. Monitoring would include consistent mindfulness awareness measurements over the duration of the intervention time to monitor student progress.

An RTI pyramid model would show success rates if implemented with yoga calm to help address students struggling with stress and anxiety. The students would be able to receive support and management skills to help them succeed. An intervention focusing on yoga calm
curriculum can be applied to an RTI model that would aim to target a variety of different students at different stress and anxiety levels. I believe that there is proficient research in support of a need for mindfulness interventions in schools for adolescent students at risk of and affected by stress and anxiety.

**ASCA Recommendations**

The American School Counselor Association or ASCA Model recommends a framework for Professional School Counselors to design and deliver comprehensive school counseling programs that promote student achievement (American School Counselor Association, 2012). This framework is comprised of four main key components to creating a successful atmosphere for students to work within: the Foundation, Management, Delivery, and Accountability. The foundation involves setting up a focus for student outcomes, teaching student competencies, and monitoring professional competencies. The management portion focuses on incorporating assessments that are reflective of the school’s needs; these can include program assessments, advisory councils, use of data, and curriculum action plans. The delivery portion includes providing services to students, staff and the community through direct and indirect services; services involved include core curriculum, individual student planning, and responsive services. The last framework piece, the accountability portion, involves demonstrating the effectiveness of the comprehensive program in measurable terms to show that students are achieving as a result of the program (American School Counselor Association, 2012).

The use of implementing an intervention program for students with stress and anxiety can be aimed at encompassing all students, since most adolescents will experience stress or anxiety both in and out of school during their education. ASCA national model themes of leadership, advocacy, collaboration, and systemic change (American School Counselor Association, 2012),
will all be incorporated to support the mindfulness intervention program. By Professional School Counselors providing leadership to students they can help to support student development (American School Counselor Association, 2012).

Under different effective leadership situations the context of human resource leadership which aims to empower and inspire, would be helpful to use with students in the mindfulness intervention (Bolman & Deal, 2010). Within Adlerian School Counseling the fostering of empowerment for students is important in promoting the knowledge, attitudes, and skills needed for student achievement (American School Counselor Association, 2012). As mentioned previously, by instilling encouragement in students it helps with promoting positive feelings, and encouraging positive attitudes and behaviors. For students who struggle with high stress or anxiety there is a missing component of self-empowerment, and they often let the stressor overwhelm their thoughts. Professional school counselors can foster encouragement through displaying leadership roles for adolescent students. An example of this in a stress and anxiety group would include the school counselor promoting positive attitudes and behaviors towards mindfulness and different positive ways that students manage stress.

**Implications and Challenges for School Counselors**

Effective counseling programs should be a collaborative effort between the counselor, parents, and other educators to provide an atmosphere that promotes student achievement. An implementation of a program focused on counseling and classroom sessions, would promote collaboration between counselors and teachers (Tadlock-Marlo, 2011). An effective intervention plan for students with stress and anxiety would utilize components of the ASCA model.

Some Professional School Counselors may not agree with the use of mindfulness as a sufficient and effective method for addressing and preventing stress and anxiety in adolescent
students. Interventions may be used to help increase internal locus of control and decrease physical reactions associated with anxiety. Though mindfulness interventions are appropriate for all students of all age levels, it is still relatively new and being researched regarding long-term implementation and efficacy (Tadlock-Marlo, 2011).

Yoga Calm, is a way of helping and giving students skills they can use to manage stress and anxiety in a healthy manner. Though Yoga Calm is not religiously affiliated, some may argue that the concept of Yoga is associated with Buddhist values and practices. Though there have been very few instances of teachers, staff, administrators, or parents objecting to its use though when the issue has arisen, Yoga Calm has commented: “When schools are looking at adding any new activity, a key consideration is to determine its appropriateness, not just lump it into a category because of its name or to disqualify it because something like it once was used in a religious context.”

This form of Yoga practiced in schools today focuses mainly on physical poses and breathing work, not affiliating it with a religious context. The curriculum used in Yoga Calm was made to be appropriate for a wide range of students and addresses barriers by meeting basic needs such as community, safety, structures, discipline, health, and self-control (Gillen & Gillen, 2007).

Use of mindfulness interventions in schools can come with challenges for Professional School Counselors. They must be trained in mindfulness interventions and implement them personally in their practice on a daily basis. This is an important part of mindfulness implementation for school counselors, by being able to promote a positive role modeling for their students. Another challenge would include continued training of implementing effective mindfulness interventions, this may occur as an added time constraint to a school counselor’s
already busy schedule (Tadlock-Marlo, 2011). In addition, educating parents, teachers, administrators, and the community on the benefits of mindfulness techniques would be an important part of the implementation process.

**Summary and Conclusions**

A mindfulness curriculum can provide benefits to students in need of skills for managing their stress and anxiety. Developing a curriculum that focuses on the reduction of stress and anxiety for students at all levels would aim to promote a positive atmosphere and overall well-being in school. To be prepared to meet this need for intervention, Professional School Counselors would implement a curriculum aimed at helping adolescents in different tiers of stress and anxiety levels. By using a multifaceted RTI model tier approach students can receive the support and help they would need to gain skills for managing their stress and anxiety. Yoga Calm would be one way that a mindfulness curriculum could be used to focus on students at the universal, selective, and individual levels. With new research being conducted on adolescent development, cognitive brain development is found to be important in executive functioning and social cognition. This growth contributes to the way adolescents are processing and managing emotions and situations related to stress and anxiety factors. Literature researched supports incorporation of mindfulness interventions in schools for students with stress and anxiety. In conclusion, mindfulness interventions can prove to be successful in helping to manage and provide skills for adolescents. Schools can hope to see a decline in the rates of adolescent stress and anxiety with the implementation of mindfulness intervention curriculum.
References


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