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Finding balance: School-based yoga programs for the prevention and reduction of anxiety

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Finding Balance: School-Based Yoga Programs for the
Prevention and Reduction of Anxiety

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A research project submitted to the Graduate Faculty of

JAMES MADISON UNIVERSITY

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Dedication

This manuscript is dedicated to the pursuit of comfort and joy. It carries the hope and optimism that preventative school-based mental health programs will continually progress and help cultivate improved wellness. Dedicated, also, to Gram, who would have been thrilled to read this manuscript and very proud to see me cross the stage at Graduation.

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Abstract

Children and adolescents experience anxiety to varying degrees; levels vary from healthy and motivating to clinically elevated and debilitating. At present, anxiety disorders are most commonly treated through psychopharmacology and cognitive behavioral therapy. This thesis contains a brief literature review of these existing treatments, followed by a presentation of the emerging support for mindfulness-based yoga programs, highlighting a particular opportunity for school-based mental health providers.

Keywords: *yoga, anxiety, wellness, prevention, school-based, holistic care.*

Literature Review

The time is 8:28am. Across the city, the rain is pouring down. Parents are hurrying to work, coffee shop employees are working in overdrive to meet the morning rush; all the while, the children of this town have harnessed the same moment to be still and calm. As the students prepare to meet the demands of the school day, they rest in their final pose, focused on the yoga instructor – listening to her slow, calm voice share the following mantra:

Watch your thoughts; they become words.

Watch your words; they become actions.

Watch your actions; they become habits.

Watch your habits; they become character.

Watch your character; for it becomes your destiny.

Calm, centered, and aware, the students leave their poses and go to open their notebooks with open minds – more confident that they can handle whatever lies ahead.

School days present many different times and reasons for children to experience anxiety. In the scenario above, a student may have entered the school feeling anxious about a spelling test or worried about a science experiment with problems he just could not figure out. One student might have felt defeated after failing to pass an SOL test, while another student woke up worried about her friendships, recalling a recent fight with her best friend. On the second floor, one student's heart began beating just a little bit faster as she passed her crush in the hall. Meanwhile, another student began his morning agonizing over the thought of going to gym class; he enjoys being active, but feels crushed each time he is selected last for team sports. There is longstanding evidence

regarding the prevalence of anxiety in school age children and accumulating support for the positive impact of mindfulness-based practices, such as yoga, on students' well-being (Hooker & Fodor, 2008). This paper examines anxiety in youth and presents the emerging evidence for the benefits of mindfulness-based yoga programs, highlighting a particular opportunity for school-based mental health providers.

Anxiety is a typical reaction to stress and, in some situations, can be beneficial (National Institute of Mental Health [NIMH], 2011). It is anxiety that activates and energizes us to react to threats and to respond to growth opportunities (Gerzon, 1997). As children progress through developmental milestones, they experience phases of anxiety. As the word *phase* suggests, these periods are often temporary and within typical developmental ranges (Anxiety Disorders Association of America [ADAA], 2011). For some children, however, anxiety exceeds beneficial levels or expected periods and, instead, becomes excessive. When anxiety levels surpass what is healthy and motivating, they threaten to interfere with one's well-being and risk developing into an anxiety disorder.

Anxiety disorders of childhood and adolescence were first recognized in the third edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-III) in 1980 (APA, 1980). The most recent version, DSM-IV-TR, defines anxiety as "the apprehensive anticipation of future danger or misfortune accompanied by a feeling of dysphoria or somatic symptoms of tension" (APA, 2000, p. 764). Another classification system, the International Classification of Diseases (ICD-10), offers a similar, yet more elaborate definition: in addition to elements of apprehension and motor tension, they add a third element, autonomic overactivity. Autonomic overactivity includes the

physiological symptoms of lightheadedness, sweating, dizziness and dry mouth (WHO, 1992). Both the DSM and the ICD share the concept that worry is considered a central component of several anxiety disorders (APA, 2000; WHO, 1992).

Researchers have examined the content, frequency, and intensity of worries, and their relationship to anxiety in both community (Silverman, La Greca, & Wasserstein, 1995) and clinical (Weems, Silverman, & La Greca, 2000) samples. Worries about health, school, and physical harm were most commonly reported by a community sample of children aged 7 – 12; these same worries, along with worries about disasters, were reported by a sample of children who presented to an anxiety disorders clinic (Weems et al., 2000). Looking specifically at school-related worries, an overwhelming majority were linked to tests and grades, followed by worries about being called on and worries about teachers (Silverman et al., 1995).

In the World Health Organization (WHO)'s World Mental Health (WMH) Surveys, anxiety disorders were reported in staggering numbers. Collectively, anxiety disorders are among the most common mental disorders in adults and children in the United States. For many people, anxiety disorders emerge at a relatively young age; estimates suggest that one quarter (25.1%) of adolescents between the ages of 13 and 18 are afflicted with an anxiety disorder (NIMH, 2011). A disproportionate number of adolescent females (30.1%) compared to males (20.3%) are diagnosed. These numbers represent the total array of anxiety disorders, including post-traumatic stress disorder, obsessive-compulsive disorder, panic disorder, social anxiety disorder, and generalized anxiety disorder.

Anxiety disorders present a challenge and an opportunity for school-based mental health professionals. Children with anxiety disorders experience fear and nervousness, sometimes so debilitating that they avoid places and activities (NIMH, 2011). Although highly treatable, it is estimated that only one third of individuals with anxiety disorders receive treatment. Research studies have shown that, when left untreated, youth with anxiety disorders are at elevated risk to perform poorly in school or even drop out, miss important social experiences, become pregnant, and engage in substance abuse (ADAA, 2011; Greenberg et al., 1999).

Anxiety disorders frequently co-occur with other mental health conditions, including eating disorders, depression, and substance abuse (ADAA, 2011). In children, anxiety disorders are highly comorbid with one another and with other psychiatric disorders such as depression, dysthymia, and attention-deficit/hyperactivity disorder (Costello, Egger, & Angold, 2005). Not only do anxiety disorders take a toll on the individual sufferer, they also have a heavy financial impact on health care spending. In a study commissioned by the Anxiety Disorders Association of America (ADAA), individuals with anxiety disorders are three to five times more likely to go to the doctor and six times more likely to be hospitalized for psychiatric disorders than individuals not afflicted with an anxiety disorder. Furthermore, the study revealed that nearly one third of the annual mental health bill is used to treat individuals with anxiety disorders (ADAA, 2011). Using data from the National Comorbidity Study, researchers (Greenberg et al., 1999) have estimated that the annual cost of anxiety disorders in the United States in 1990 was \$42.3 billion dollars. Greenberg et al. suggest that much of this considerable cost to society can be avoided with more widespread awareness and early intervention.

Long-Term Effects of Anxiety

Anxiety has a number of negative effects, including: sleep disturbance; tension headaches; stomach upsets; irritability; impairment in thinking, concentration, and memory; and embarrassing tremors and sweating. These physiological reactions, when chronic across time, can impair the body and result in psychophysiological problems, often in the form of gastrointestinal symptoms. Such secondary symptoms can, by themselves, create additional anxiety, thus creating a vicious cycle whereby anxiety perpetuates itself indefinitely. Moreover, the chronic maintenance of anxiety may lead a person to physically avoid the anxiety-provoking stimulus, or to numb its effects through use of alcohol or drugs. Consequently, an individual's primary complaint might shift as phobias or addictions develop as a mechanism to avoid the original feeling of anxiety (Prochaska & Norcross, 2007). Whether faced with clinically significant or developmentally-appropriate anxiety, it is common to desire and seek relief from anxiety's negative effects. Before delving into the emerging empirical support for yoga as treatment for anxiety, it will be helpful, first, to briefly outline the two most commonly accepted forms of treatment for anxiety disorders: cognitive behavior therapy (CBT) and psychopharmacology.

Cognitive Behavioral Therapy

Cognitive behavior therapy (CBT) is a dominant form of psychotherapy practiced by clinicians in North America and the United Kingdom, and it is becoming increasingly more popular in Europe, Asia, and Latin America. CBT is applied widely to the human experience, including assessment and treatment of developmental delays, different types and intensity levels of psychopathology, as well as in primary prevention and even

among athletes to enhance peak performance (Herbert & Forman, 2011). Within this range of applications, lies the use of CBT for the treatment of anxiety. The literature suggests that, at present, the most effective treatment for adults with anxiety is CBT (ADAA, 2011; NIMH, 2011). Similar findings hold true for youth as well. In a recent review of 32 studies addressing evidence-based treatment of anxiety in children and adolescents, CBT was found to be the most effective psychosocial treatment, both in individual and group modalities (Silverman, Pina, & Viswesvaran, 2008). CBT is a well-established, highly effective, and lasting treatment for anxiety (ADAA, 2011).

In one of the first books written about CBT, Meichenbaum (1977) described self-observation to be the foundation of cognitive-behavior interventions:

The first step in the change process is the client's becoming an observer of his own behavior. Through heightened awareness and deliberate attention, the client monitors, with increased sensitivity, his thoughts, feelings, physiological reactions, and/or interpersonal behaviors. As a result of the translation process that occurs in therapy, the client develops new cognitive structures (concepts) which permit him to view his symptoms differently. Attending to one's maladaptive behaviors takes on a different meaning – a meaning that contributes to a heightened vigilance or “raised consciousness” (pp. 219).

Similar to Meichenbaum's process of “raised consciousness”, yoga includes a mindfulness component that also works toward focused awareness. Mindfulness has been defined as the awareness that appears when we pay attention to our experience in a particular way: on purpose; in the present moment, and; without judgment (Kabat-Zinn,

1994). The trait of mindfulness has been proven to be highly associated with improved health and is an important part of the yoga practice (Shelov & Suchday, 2009).

Recently, many cognitive behaviorists have more fully embraced the element of mindfulness in CBT and the field has expanded to include a new line of psychotherapy called Mindfulness Based Cognitive Therapy (MBCT). MBCT was developed as a targeted approach for people in remission from depression. The goal was to utilize mindfulness meditation to teach these individuals to respond adaptively to early warning signs of relapse by gaining awareness of their body sensations, thoughts, and emotions (Crane, 2009). The application of MBCT has since broadened beyond depression to also include anxiety disorders. While the efficacy of MBCT is still being established, the field shows some promise for acute treatment of anxiety disorders (Fresco, Flynn, Mennin, & Haigh, 2011).

Psychopharmacology

Psychopharmacology is frequently implemented in isolation, or as an accompanying treatment to psychotherapy. Some researchers (La Torre, 2001) note that medications are often used to provide some initial anxiety reduction so that the client may focus enough to do cognitive work. A full review of medications for anxiety treatment is outside the scope of this paper; however, brief mention is warranted to acknowledge the widespread use and efficacy for anxiety. A cross-national study comparing psychotropic medications prescribed to youth in the year 2000, revealed that the prevalence was significantly greater in the United States (6.7%) than the Netherlands (2.9%) or Germany (2.0%) (Zito et al., 2008).

According to the NIMH (2011), the most commonly used classes of medication used to treat anxiety disorders are antidepressants, benzodiazepines, and beta-blockers. Antidepressants are commonly started at low doses and increased over time. Benzodiazepines serve a similar function; however, they often begin working more quickly than antidepressants. Beta-blockers work slightly differently; they are often prescribed to temporarily control some of the physical symptoms of anxiety (e.g. sweating and trembling) during high stress events. Selective Serotonin Reuptake Inhibitors (SSRIs), a particular class of antidepressants, are the most commonly prescribed medications for childhood anxiety disorders. Tricyclic antidepressants and benzodiazepines are less commonly prescribed to children (ADAA, 2011).

A large scale, federally-funded, randomized placebo-controlled trial, called the Child/Adolescent Anxiety Multimodal Study (CAMS) was recently completed to evaluate the relative efficacy of CBT, psychopharmacology (sertraline), and their combination as treatment options for separation anxiety disorder (SAD), generalized anxiety disorder (GAD), and social phobia (SoP) in children and adolescents. Results – during the acute phase of the CAMS study – indicated that the combination of sertraline and CBT was the most effective treatment option (Compton et al., 2010).

As the literature illuminates, psychotherapy and psychopharmacology are effective treatment modalities for people of all ages to manage anxiety levels. In addition to these treatments, a variety of other therapeutic agents have demonstrated promise to help individuals achieve anxiety reduction. Many of these therapeutic options fall under the umbrella of holistic care.

Improved Wellness through Holistic Care

While the focus on holistic care appears to be a recent trend, an appreciation of holism dates back several decades. Alfred Adler, in writing about individual psychology, advocated for the necessity to look for reciprocal actions of the mind on the body, for they are both a part of the whole being (Myers, Sweeney, & Witmer, 2000).

Evidence for the mind-body connection has recently been supported by neuroscientists. Findings indicate that feelings and thought patterns are expressed in neurology (brain activity) and physiology (body posture) (Simpkins & Simpkins, 2010). Furthermore, neuroplasticity research has shown that the mind-brain-body system is influenced by the things that we do. Our behavior and experiences effect change to the brain which, in turn, changes our emotions and thoughts (Simpkins & Simpkins, 2011).

It is a goal of holistic care to help the individual strive towards a state of wellness. Myers et al. (2000) define wellness as “a way of life oriented toward optimal health and well-being in which body, mind, and spirit are integrated by the individual to live more fully within the human and natural community” (pp 252). Further, they affirm that “ideally, it is the optimum state of health and well-being that each individual is capable of achieving” (pp 252). To achieve this ideal state of well-being, many individuals seek the help of complementary or alternative medicine (CAM), such as Yoga.

The remainder of the present paper is devoted to exploring the wellness benefits of Yoga in the context of school-based programming for children with both normal and clinical levels of anxiety.

Mindfulness-based Yoga

There are many types of yoga; they vary from relaxing to more rigorous and the

difficulty level varies across types. Certain elements are common across many specific practices; yoga generally involves poses, postures, and positions (asanas) that are practiced in sequences, throughout which there is a focus on breathing (pranayama) and relaxation (savasana) (Shapiro et al., 2007). These elements can have a calming effect and help to provide relief from stress (Payne & Usatine, 2002).

Yoga involves mental focus on your physical body. As yoga effectively calms the mind and strengthens the body, your focus on both unites these two processes and brings them into harmony. Furthermore, with increasing attunement to your own body comes a greater difficulty to treat it with disrespect; students of yoga are more apt to quit smoking, stop eating junk food, and to deliberately strive for a healthy lifestyle (Payne & Usatine, 2002).

While enthusiasm for the healing benefits of yoga is not new, scientific research to support these beliefs is only recently emerging. Scientific research has shown yoga to have a number of health enhancing effects for adults. Although further study is warranted, the existing literature is suggestive of promising associations. Scientific studies have shown yoga-based mind-body interventions (including breathing, meditation, postures, centering, and visualization) to improve stress-related conditions such as asthma, hypertension, cardiac illness, high cholesterol, irritable bowel syndrome, cancer, insomnia, multiple sclerosis, and fibromyalgia (Becker, 2000; Benson, 1996; Jacobs, 2001).

In a study of adults with unipolar major depression, in partial remission, 11 out of 17 achieved full remission following an 8-week Iyengar yoga intervention. In addition,

self-report measures indicated immediate improvements in mood after each class for each participant (Shapiro et al., 2007).

Yoga breathing (pranayama), a key element of yoga practice, has been shown to have therapeutic benefits, even when used in isolation. There is a belief that a bi-directional relationship exists between the mind and the breath, such that manipulation of the breath can affect the mind and consciousness (Brown & Gerbarg, 2009). Furthermore, one study provided evidence that voluntarily changing the pattern of breath can account for at least 40 percent of the variance in feelings of anger, fear, joy, and sadness (Philippot et al., 2002).

Yoga breathing moves us to the present moment and quiets the unrest of the mind. With the mind in the present moment, we can then experience the serenity and joy that minimize the effects of stress (Brown & Gerbarg, 2009). The body's breathing center is in the brainstem, the same place that autonomic functions such as heart rate, blood pressure, skin temperature, and digestion are controlled. In contrast, however, breathing is the only autonomic function that you can control at will. Yoga breathing reduces stress by reducing the flow of adrenaline and other stress hormones, and signals the brain to minimize the perception of pain (Payne & Usatine, 2002).

In recent years, rigorous scientific study has sought to systematically evaluate the effects of yoga and to discern the mechanisms through which the positive benefits are achieved. One such mechanism that has received attention in the literature is gamma-Aminobutyric acid (GABA) levels. Anxiety disorders have been associated with low GABA states and have been effectively treated with psychopharmacology agents that increase the GABA system activity (Brier & Paul, 1990).

Streeter et al. (2007) hypothesized that yoga's positive effects on anxiety were mediated through this same GABA system, and that they could be measured using magnetic resonance spectroscopy (MRS). The researchers concluded that yoga practice should be further explored as a complementary or alternative modality for treatment of individuals with low GABA levels (Streeter et al., 2007).

In a follow up study, Streeter et al. (2010) sought to assess whether changes in mood, anxiety, and GABA levels were specific to yoga or related more generally to physical activity. Their results suggest that the effect of yoga on mood and anxiety is not solely attributable to the metabolic demands of the activity. Furthermore, the authors assert that the possible role of GABA in mediating the benefits of yoga on mood and anxiety demands further study (Streeter et al., 2010).

These results point to the potential role of yoga as a complementary or alternative method to treat anxiety disorders in adults. Although the literature addressing the wellness benefits of yoga is more heavily weighted by adult studies, the implementation and efficacy of yoga programs for youth are, similarly, quite promising.

Yoga instruction for children.

While there is much variation in yoga classes for children, several commonalities can be illuminated to help the reader visualize and understand how a class might look. Children's yoga classes are different from adult classes in several fundamental ways. The changes are designed to engage and motivate school-aged children toward active participation (Harper, 2010).

Children's classes typically involve an integrating theme (Feldman, 2005; Harper, 2010). When all aspects of the class can be creatively linked to the theme in some way, it

aids in the children's development of mental focus. In addition to time for movement, children's yoga classes also designate time for discussion (Feldman, 2005). The discussion component can take many forms; it can be structured, or can arise to take advantage of teachable moments (Harper, 2010). Another element, specially designed for children is the inclusion of a creative portion (Feldman, 2005). Structure provides a feeling of comfort to children (Kenny, 2002). Some yoga instructors advise consistent structure (Feldman, 2005), while others stress the importance of achieving a balance between routine and creativity (Harper, 2010). Goals of yoga for children include: 1) increased body awareness and physical control; 2) improved mental concentration; 3) enhanced sense of competence and confidence; and 4) a deep sense of inner harmony and peacefulness while having fun (Feldman, 2005).

Wellness benefits of yoga.

Yoga can contribute to improved wellness in many ways. The following section will outline and briefly describe several ways in which yoga is beneficial.

Yoga is non-competitive and non-judgmental.

Childhood is a developmental stage, during which children are expected to learn new skills, perform on demand, and achieve positive results in school, at home, and even during extracurricular activities. Children commonly feel great pressure to meet these demands; the pressure often manifests as stress which compromises physical health and psychological well-being. Furthermore, when children are unable to achieve success, feelings of inadequacy, low self-esteem, anxiety, depression, social isolation and social rejection may ensue (Feldman, 2005). With these pressures in mind, Heidi Feldman, pediatrician and child psychologist, developed a yoga class for school-aged children to

serve as a haven from the performance demands they typically experience. The yoga class, derived from theories of developmental psychology, provides the children with a safe environment that nurtures their physical, psychological, and spiritual development (Feldman, 2005).

Children have a natural interest in gaining new skills. To help cultivate this hunger for learning, it is crucial for yoga instructors to emphasize the process and thrill of learning, instead of narrowly focusing on performance and evaluation. Each child should be encouraged to learn new poses, try balances, and remember sequences – all the while being recognized for personal accomplishments rather than being compared to a universal standard (Feldman, 2005).

To help foster a non-judgmental atmosphere within which the children can develop self-acceptance, yoga instructors are advised to be highly supportive. A key is to offer genuine praise for a child's energy, effort, and openness and to refrain from making judgments about – or corrections to – a child's yoga practice (Feldman, 2005).

Yoga is strengths-based.

Yoga is a practice that meets children where they are; simultaneously honoring and building upon their strengths. Strength-based programs, such as yoga, support the beliefs that 1) all people have strengths, although often untapped or unrecognized; 2) strengths are internal and environmental; and 3) strengths foster motivation for growth (Saleebey, 1992). To honor the strengths of children, it is important to acknowledge successes and good choices, however large or small (Harris & Fitton, 2010).

Yoga cultivates creative and imaginative expression.

For children to remain engaged in learning, responsibility falls on the instructor to

make the lessons fun. One way this can be achieved is through stimulating the children's imaginations. For example, instead of plainly asking a child to sit up straight, instructors may ask them to imagine that they are a king or queen, wearing a family crest on their chest and a crown on their head. With this vision in mind, a child is encouraged to make the connection between a tall, straight spine and feelings of confidence and self-worth (Feldman, 2005).

Artistic and imaginative expression may also serve as an alternative to self-destructive behaviors (Harris & Fitton, 2010). In their Art of Yoga Project, Harris & Fitton also encourage their participants to practice written expression through daily journaling as a means for self-reflection.

Yoga builds cooperation and community.

Unlike adult yoga classes, yoga programs for children may include significant interaction among peers. Several yoga programs describe the inclusion of partner and group activities (Feldman, 2005; Harper, 2010; Harris & Fitton, 2010; Powell, Gilchrist, & Stapley, 2008). Toward the end of class, one instructor invites the children to form groups and create a story out of the poses from the day. This works particularly well for poses that have animal names. Each group can then perform its story for the rest of the class to enjoy (Feldman, 2005).

Another way to encourage cooperation is to create a yoga obstacle course. Yoga mats can be arranged in a sequence of stations, each of which to involve a different Yoga activity. Children can even be part of the planning process, having a voice to choose and create what each station will entail (Harper, 2010).

A quick and easy cooperative activity that can be used in isolation, or as part of an

obstacle course, is the task of creating and naming a new yoga pose (Feldman, 2005).

This collaboration could be achieved in partners, small groups, or even as an entire class.

Yoga is cost effective.

Yoga programs are relatively easy to implement and inexpensive. Yoga can, however, become expensive if excess money is spent on materials like brand name yoga clothing, top of the line mats and other props. It does not, however, need to be this way. Although having mats would be ideal, yoga activities can even be performed with no equipment at all. While equipment is not mandatory, the guidance and support of a trained instructor is. Funding would therefore be necessary to support the addition of a yoga instructor to be employed by the schools. The instructor could also help the teacher to be involved during class and to safely continue the concepts and themes throughout the school curriculum.

Without funding for personnel, schools still have options for incorporating yoga activities into their curriculum. In recognition of the education budget crisis and resultant funding cuts, The Yoga Health Foundation responded by developing a DVD classroom yoga program, Yoga-Recess™, and offering it – free of charge – to school teachers. This contribution is intended to encourage the inclusion of mind-body fitness exercises in a variety of settings, including pre-schools, day care centers, elementary schools, high schools, after-school programs, community centers, and youth organizations. The interactive videos demonstrate 5 and 15 minute yoga segments activity. Although yoga knowledge is not required of the supervising teacher, The Yoga Health Foundation offers free online training, including direction regarding how to integrate Yoga-Recess™ into a daily classroom schedule.

As support for the benefits of yoga continues to grow, perhaps federal grants might become available to finance programs. Sponsorship might also be possible through collaboration with a yoga studio or Wellness Center, such that yoga instruction is provided in exchange for advertising or other services that the schools can provide.

Yoga meets standards of learning guidelines.

The Physical Education Standards of Learning (SOL) for Virginia Public Schools identify the purpose to “help students acquire the knowledge, processes, skills, and confidence needed to engage in meaningful physical activity both in the present and for a lifetime” (Department of Education [DOE], p. 2). The DOE asserts that “the practice of leading a physically active lifestyle will bring about personal enjoyment, challenge, satisfaction, and a health-enhancing level of personal fitness” (p. 2). The SOLs for Physical Education outline a sequence of increasing expectations for the curriculum from Kindergarten through twelfth grade. Before graduating high school, students are expected to “demonstrate proficiency in all basic movement skills and patterns and competency in at least three self-directed, lifelong, skill-related physical activities” (p. 19). Further, they stipulate that attainment of this target includes “setting of goals, improvement of personal skills, and planning for future activity beyond school years” (p. 19). Yoga is a practice that satisfies each of these SOL requirements. Combined with the aforementioned evidence to support the anxiety reduction and wellness benefits of yoga, this additional element of SOL fulfillment suggests that it is an activity worthy of consideration at the school-wide level.

Yoga programs encourage collaboration.

In order for the children to respect and value the principles and techniques

learned in yoga, it is essential that parents and school personnel, including teachers, school counselors, and principals embrace the program. Feldman (2004) asserts that educating parents about the vocabulary, structure, and advantages of yoga enhances the therapeutic potential for the children. The teachers' role is not limited to simply being supportive of yoga in the classroom; instead, they can play a vital role through collaboration. Academic topics can be woven into the yoga activities; for example, children might be asked to demonstrate and describe how a seed transforms into a tree (during "tree pose") or how many total breaths it would be if they held "warrior pose" for 5 breaths on each side.

For many students who are struggling in traditional settings, instructors have found them to have a greater grasp of literacy, math, and science concepts when questions are interwoven into the yoga class (Harper, 2010). Harper (2010) attributes this success to the environment where the students already feel confident and able to succeed. Classic research by Bandura (1977) revealed that motivation to persevere in the face of difficulties is dependent upon the person's belief that their actions can produce positive results. When children lack this self-efficacy, they are likely to have difficulty acquiring new skills, adapting to new environments and, consequently, managing the stress that ensues (Feldman, 2005). Personal growth and success in yoga might therefore help build a child's sense of self-efficacy to help them achieve in the more challenging and academically demanding areas of their lives.

Existing Yoga Programs for Youth

A number of yoga programs have been created for youth in school-based and after-school settings across the United States. The following section briefly outlines

programs that have been described in peer reviewed journals.

The art of yoga project.

In a recently published article, Harris and Fitton (2010) provide a detailed depiction of The Art of Yoga Project (AYP) with the hope that other therapists will be inspired to follow their lead. AYP was created to help girls in the California Juvenile Justice System build positive futures for themselves. With the goal of improving lifelong wellness through self-awareness, self-respect, and self-control, specially trained yoga instructors entered juvenile detention centers to provide an intervention combining yoga, visual arts, and creative writing. Motivation for this type of holistic program arose as Mary Lynn Fitton, nurse practitioner and yoga instructor, noticed that many adolescent girls lacked self-awareness and a sense of respect for their bodies. AYP, which began as a pilot program in 2003 is now an independent 501(c)(3) nonprofit organization that serves over 500 incarcerated girls annually in three San Francisco Bay Area Counties. Employees of these juvenile justice facilities have recognized the AYP curriculum as the “missing link” in the girls’ rehabilitation process (Harris & Fitton, 2010). At the time of publication, only internal reviews of AYP had been conducted. The authors note, however, that an extensive evaluation was scheduled to begin in the fall of 2010 so that AYP may improve its program and better communicate with institutions and funding agencies (Harris & Fitton, 2010). Empirical study, such as this, is imperative for the advancement of yoga programs for youth.

Healing sexual abuse with yoga.

Yoga, along with other multisensory activities including guided meditation, art projects, and mindful eating comprise the Healing Childhood Sexual Abuse with Yoga

(HCSAY) program, recently described in the *International Journal of Yoga Therapy* (Lilly & Hedlund, 2010). This program is currently being offered by the authors in Portland, Oregon under the direction of the Street Yoga organization. In their article, Lilly and Hedlund (2010) provide a rationale and best practices for using yoga to help youth recover from this type of trauma, illustrating their full 8-week curriculum, including class themes, suggested poses, mantras, mindfulness practices, and creative activities. HCSAY consists of weekly 90-minute sessions, co-led by a trained yoga teacher and a sexual abuse counselor. Each class reinforces the framework of developing assertiveness from a core of safety and strength. Within this overarching frame, lies a specific theme for each week, presented in the following sequence: Safety, Boundaries, Strength, Assertiveness, Power, Intuition, Trust, and Community. Each theme is explored through the use of 1) an affirmation/mantra (e.g. “I have the right to personal space”, for the Boundaries theme); 2) poses or movement, specifically selected to fit the theme (e.g. warrior poses for Power and Assertiveness); and 3) other activities that utilize art, games, or movement to further explore the theme.

An additional component of the program is an opportunity for teen leadership. The program is first conducted with a group of girls aged 13 – 18. After completion of the 8-week program, some of these girls are offered the opportunity to be youth leaders for the next group of girls aged 8 – 12. This offering has become central to the HCSAY model as it allows the girls deeper healing through greater cultivation of assertiveness, boundaries, safety, and trust, all while giving back and sharing their strength with others.

The authors surveyed the adolescent girls at the conclusion of the 8-week program, and reported that 85% of the girls agreed that with yoga they felt happier, more

energetic, more focused, and less nervous and tense. Lilly and Hedlund concede, however, that formal research to evaluate the effectiveness of their program has not yet been conducted.

Holistic life foundation.

While the Art of Yoga and Healing Childhood Sexual Abuse with Yoga programs are surely a step in the right direction toward improving youth wellness, they lack rigorous scientific validation. A Baltimore, Maryland-based organization, Holistic Life Foundation (HLF) has helped to advance the field with the help of researchers (Mendelson, Greenberg, Dariotis, Gould, Rhodes, & Leaf, 2010) who conducted a pilot randomized controlled trial of HLF's yoga program. Mendelson et al. (2010) had the goal of evaluating the acceptability and feasibility of the yoga intervention and appraising its promise for improving youth functioning, as indicated by elements such as peer relations, stress, anxiety, and depression.

Fourth and fifth grade students were chosen to participate in a 12-week intervention that included breathing techniques, guided mindfulness, and yoga-based physical activity. This age group was purposefully selected as an early intervention to enhance students' abilities to handle stress, prior to the often-stressful transition from elementary to middle school.

Four schools were selected and randomized; two to immediately receive the intervention, and two more to serve as wait-list controls. Social, emotional, and behavioral measures were taken at baseline and again, post-intervention. In addition, focus groups were conducted to further assess the benefits of the program from the perspective of both teachers and students alike. Findings of this study suggested that

fourth and fifth grade students, teachers, and school administrators demonstrated interest in the HLF yoga program, and further, that the program had a positive impact on maladaptive responses to stress, such as rumination, intrusive thoughts, and emotional arousal. This study provided preliminary support for the use of mindfulness-based yoga to improve self-regulatory capacities and to reduce stress.

An Opportunity for School-based Prevention

Benjamin Franklin made a sharp point with his well-known quote “an ounce of prevention is worth a pound of cure”. School-based mental health services have not, historically, existed with preventative measures or with universal applications in mind. Instead, school mental health services arose, and further developed, in specific problem-oriented contexts. In response to the passing of compulsory attendance laws, Social workers first entered the schools to support families in getting their “truant” children to school. Similarly, school psychology originated with problem-oriented goals, by aiming to diagnose and remediate the school adaptation problems of slow-learning and skill-deficient children. A problem with both of these approaches, is that a school’s limited mental health resources are allocated exclusively to the students whose concerns are the most serious or most visible; students who are less socially disruptive are often overlooked. (Cowen et al., 1996).

In 1957, University of Rochester researcher, Emory L. Cowen, radically shifted the focus of school-based programs toward wellness promotion by presenting an innovative early-intervention program called the Primary Mental Health Project (PMHP). PMHP was designed to identify and provide support to children “at risk” of social, emotional, and school adjustment difficulties (U.S. Department of Education, 2001).

PMHP has evolved over a period of nearly 55 years, and as of 2005, the program had been disseminated worldwide to over 2000 elementary schools (Johnson, Pedro-Carroll, & Demanchick, 2005).

To achieve an even greater distribution of mental health resources, prevention programs can be utilized in schools. Johnson et al. (2005) point out that a virtue of prevention programs is that they, through policy-making decisions, can be equally targeted to all sectors of society. This, they suggest, can help to even out inequalities in mental health resource distribution. A yoga program, offered universally across a school or even a school system, would be one way to advance the movement of more widespread resource distribution, while providing a form of early intervention care. Early intervention programs, such as this, would be a wise use of resources, since early intervention is suggested to be key to the prevention of problem behaviors in school-aged children (Powell et al., 2008).

Conclusion

The old adage “the best defense is a good offense” epitomizes the goal of preventative mental health care. With the enormous toll that anxiety disorders take on the individual sufferer and on health care spending, it might be wise to consider expanding preventative efforts through holistic programs such mindfulness-based yoga. Although still an emergent field, yoga programs in schools have shown preliminary promise for helping children and adolescents to improve in a number of areas of wellness, including reduction of anxiety. While these developments are certainly noteworthy, additional empirical study is warranted. Evidence from rigorous scientific study is necessary to

validate the findings and ultimately to advance acceptance and application of yoga-based programming as a way for children and adolescents to achieve optimal wellness.

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