Mindfulness Practice in K-12 Schools: Emerging Research on Stress, Well-Being, & Achievement

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Between stimulus and response there is a space.
In that space is our power to choose our response.
In our response lies our growth and our freedom.
Viktor E. Frankl
Psychiatrist and Holocaust Survivor

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I. Purpose

The purpose of this document is to provide interested professionals in the area of education and human development with a summary and collection of peer-reviewed research on the emerging field of mindfulness education in schools. The document primarily focuses on the impact of mindfulness practice on both adult educators, mainly teachers, and students from specifically elementary school through high school. As we rethink the knowledge, skills and dispositions needed in the 21st century to thrive in our fast-changing global culture, it is an opportune time to consider other life skills that can contribute to well-being, resilience, and academic and life success.

This reader is organized by the listed topics below. Each topic consists of a written literature summary and a collection of supporting peer-reviewed research abstracts.

Reader Topics

A. Mindfulness Practice & Teacher Personal Development and its Impact on Student Learning and Classroom Climate
B. Mindfulness Practice & Students
    1. Students Well-being
    2. Self-regulation & Achievement
    3. Urban Youth
C. Mindfulness Practice & The Treatment of Mental Health Disorders in Youth
    1. ADHD
    2. Anxiety
    3. Conduct Disorder
D. Measuring Mindfulness
    1. Measurements for Children and Teens
    2. Measurements for Adults
E. Additional Literature Reviews & Summaries Pertaining to Mindfulness in Schools

II. Introduction

> *One of the primary ironies of modern education is that we ask students to "pay attention" dozens of times a day, yet we never teach them how. The practice of mindfulness teaches students how to pay attention, and this way of paying attention enhances both academic and social-emotional learning.*
>
> (Saltzman, 2011)

What is Mindfulness Practice?

Mindfulness practice is the intent to remain present in moment-to-moment experiences in a nonjudgmental way (Kabat-Zinn, 2003). Such practice includes meditative activities or simply walking, eating, and listening with intent.

What is the History of Mindfulness Practice?

Mindfulness originated from Buddhist thinking two and half thousand years ago. Originally, its purpose was to help individuals healthily respond to habitual self-induced suffering. Within the past 30 years, mindfulness-based practice has grown in popularity and research has shown its efficacy in relieving and treating physical and psychological conditions, in addition to improving the health and well-being of individuals. Two of the most studied mindfulness-based trainings included Mindfulness-Based Stressed Reduction (MBSR) and Mindfulness-Based Cognitive Therapy (MBCT). Although many mindfulness-based trainings have roots in Buddhist teachings, they are secular practices and do not identify as a religion and can be practiced by all people regardless of religion. Currently, mindfulness-based practices are being taught in organizations (profit and nonprofit), leadership programs, and in medical and therapeutic

settings.

What is the Importance of Mindfulness Practice?
Ongoing mindfulness practice helps individuals gain a clearer understanding of how their thoughts and emotions impact their health and quality of life. Commonly, individuals are automatically physiologically or emotionally responding to stressors in life. This lack of awareness can lead to poor emotional self-regulation, a development of unhealthy habits, neglect of the body's state of well-being, and even illness. Mindfulness practice helps to develop the awareness-response to stressors in life as shown in the diagram below.

(Sourced from www.mindfulschools.org/about-mindfulness)

What is the Impact of Mindfulness Practice?
Research has shown that ongoing mindfulness practice leads to positive changes in the brain and can improve the well-being of individuals. Here is a summary of findings.

In adults mindfulness-based practice leads to:

- Thicker cortical regions in the brain that helps with attention and sensory processing (Lazar et al. 2005)
- Heightened empathetic awareness (Lutz et al., 2008)
- An improvement in the brains activation of positive affect and immune response, more specifically antibody production (Davidson et al., 2003)
- An improvement in stress regulation by a faster reduction in the stress hormone, cortisol (Tang et al., 2007)
- Enhanced relationships by improving autonomy, closeness and acceptance of one another (Carson et al., 2004)
- Social connectedness (Hutcherson et al., 2008)

In children mindfulness-based practice leads to:

- A decrease in aggressive and non-compliant behavior (Singh et al., 2006, Singh et al., 2007B)
- A decrease in aggressive behavior with conduct disorder (Singh et al., 2007A)
- A decrease in symptoms of anxiety (Semple et al., 2005)
- A decrease in symptoms of ADHD (Zylowksa, 2008)
- An improvement in attention and social skills with a decrease in test anxiety (Napoli et al., 2005)
- An improvement in self-regulatory behaviors and executive functioning amongst preschool and elementary school students (Flook et al., 2010)
- An improvement in social relationships, self-control, and academic performance amongst middle school students (Rosaen & Benn, 2006)

Mindfulness in Schools
Studies of mindfulness-based practice in schools have grown in this past decade. Research has shown that mindfulness practice can improve student attention, social and emotional learning, and academic success.

In addition, teachers have shown improvements in self-management of stress and emotions, effective teaching, classroom management, and a positive classroom climate. *More information can be found in chapter III and IV of this reader.*

The Orange County Dept. of Education (OCDE) is evaluating a teacher professional development program addressing stress management, including a mindfulness-based approach to stress reduction, with elementary and middle school teachers and their students. The aims of the year-long training project called Resilient Mindful Learner is 1) to build the resilience and stress management skills of teachers and 2) to train teachers to integrate stress reduction practices and attentional strategies for their students as part of their classroom management. The pilot project will assess adults' outcomes of perceived stress, mindful awareness, aspects of burnout, and depression. Students, grades 4-8, will be assessed on perceived stress, mindful awareness, and positive and negative affect. For more information, please go the OCDE K-12 Student Mental Health Initiative website at http://www.ocde.us/healthyminds.

III. Mindfulness & Teacher Personal Development: The Impact on Student Learning and Classroom Climate

Summary
Personal development is often ignored in teacher education but it is crucial for effective teaching and a positive classroom climate (Kosnick & Beck, 2009; Danielewicz, 2001; Alsup, 2006). Key components of personal development include meta-cognitive skills (e.g. cognitive flexibility), moment-to-moment awareness, and emotional regulation (Solloway, 2011). These factors allow for the capacity to maintain attributes such as kindness, patience, and empathy while building teacher-student relationships and managing obstacles in the classroom.

Currently, the concept of "apprenticeship of observation" serves as a key inhibitor to the personal development of teachers (Lortie, 1975). Teachers often observe what good teaching looks like and imitate the methods of former teachers in their classroom rather than independently modifying lessons and classroom structure according to the needs and changes of their students. This is a concern because effective teaching requires meta-cognitive skills, in other words, the cognitive flexibility to make decisions and/or changes in the classroom in response to the learning of the children. The most effective teachers are adaptive experts and not imitators of observation alone (Darling-Hammond, 2006; Hammerness, Darling-Hammond and Bransford, 2005).

Mindfulness-based training intervenes with the "apprenticeship of observation" by emphasizing the concept of the "beginner's mind". The teacher is taught how to focus on each moment as a new moment; leaving room for teachers to put aside past conditioning and open themselves to new teaching practice and the development of meta-cognitive skills. Moment awareness and cognitive flexibility have also been shown to lead to a reduction of stress, depression, and anxiety among teachers (Reibel, 2007; Gold et al., 2010) and an improvement in teacher curriculum development, quality of life, and classroom management (Napoli, 2004).

Mindfulness-based training also helps teachers reduce their reactivity to difficult behaviors in the classroom and emotionally self-regulate, which has been proven to be a key contributor to effective classroom management (Solloway, 2011).

The below supporting research abstracts provides evidence of mindfulness practice effecting:
- Reductions in teacher psychological symptoms and burnout, classroom organization, and self-compassion (Flook et al., 2013)
- Teacher stress management, the creation and sustenance of supportive relationships in the classroom, and a positive classroom climate (Roeser et al., 2012; Jennings et al., 2009)
- Reductions in teacher stress and improvement in teacher performance (Jennings et al., 2011A; Jennings et al., 2011B; Solaway, 2011A; Sollaway, 2011B; Gold et al., 2010; Poulin, 2009)
- Reductions in teacher stress and anxiety and increased self-compassion and emotional balance of parents and educators of children with special needs (Benn et al., 2012)

Flook, L., Goldberg, S., Pinger, L., Bonus, K., & Davidson, R. J. (2013). Mindfulness for teachers: A pilot study to assess effects on stress, burnout and teaching efficacy. *Mind, Brain and Education 7,* 182–195.

Abstract
Despite the crucial role of teachers in fostering children's academic learning and social-emotional well-being, addressing teacher stress in the classroom remains a significant challenge in education. The present study reports results from a randomized controlled pilot trial of a modified Mindfulness-Based Stress Reduction course (mMBSR) adapted specifically for teachers. Results suggest the course may be a promising intervention, with participants showing significant reductions in psychological symptoms and burnout, improvements in observer-rated classroom

organization and performance on a computer task of affective attentional bias, and increases in self-compassion. In contrast, control group participants showed declines in cortisol functioning over time and marginally significant increases in burnout. Furthermore, changes in mindfulness were correlated in the expected direction with changes across several outcomes (psychological symptoms, burnout, sustained attention) in the intervention group. Implications of these findings for the training and support of teachers are discussed.

Roeser, R. W., Skinner, E., Beers, J., & Jennings, P. A. (2012). Mindfulness training and teachers' professional development: An emerging area of research and practice. *Child Development Perspectives, 6,* 167–173.

Abstract

This article focuses on how mindfulness training (MT) programs for teachers, by cultivating mindfulness and its application to stress management and the social-emotional demands of teaching, represent emerging forms of teacher professional development (PD) aimed at improving teaching in public schools. MT is hypothesized to promote teachers' "habits of mind," and thereby their occupational health, well-being, and capacities to create and sustain both supportive relationships with students and classroom climates conducive to student engagement and learning. After defining mindfulness and its potential applications in teacher education and PD, this article discusses emerging MT programs for teachers, a logic model outlining potential MT program effects in educational settings, and directions for future research.

Benn, R., Akiva, T., Arel, S., & Roeser, R. W. (2012). Mindfulness training effects for parents and educators of children with special needs. *Developmental Psychology*, *48*(5), 1476-87.

Abstract

Parents and teachers of children with special needs face unique social– emotional challenges in carrying out their caregiving roles. Stress associated with these roles impacts parents' and special educators' health and well-being, as well as the quality of their parenting and teaching. No rigorous studies have assessed whether mindfulness training (MT) might be an effective strategy to reduce stress and cultivate well-being and positive caregiving in these adults. This randomized controlled study assessed the efficacy of a 5-week MT program for parents and educators of children with special needs. Participants receiving MT showed significant reductions in stress and anxiety and increased mindfulness, self-compassion, and personal growth at program completion and at 2 months follow-up in contrast to waiting-list controls. Relational competence also showed significant positive changes, with medium-to-large effect sizes noted on measures of empathic concern and forgiveness. MT significantly influenced caregiving competence specific to teaching. Mindfulness changes at program completion mediated outcomes at follow-up, suggesting its importance in maintaining emotional balance and facilitating well-being in parents and teachers of children with developmental challenges.

Jennings, P. A., Snowberg, K. E., Coccia. M. A., & Greenberg, M. T. (2011A). Improving classroom learning environments by Cultivating Awareness and Resilience in Education (CARE): Results of two pilot studies. *Journal of Classroom Interaction, 46(*1), 37–48.

Abstract

Cultivating Awareness and Resilience in Education (CARE) is a professional development program designed to reduce stress and improve teachers' performance. Two pilot studies examined program feasibility and attractiveness and preliminary evidence of efficacy. Study 1 involved educators from a high-poverty urban setting (n = 31). Study 2 involved student teachers and 10 of their mentors working in a suburban/semi-rural setting (n = 43) (treatment and control groups). While urban educators showed significant pre-post improvements in mindfulness and time urgency, the other sample did not, suggesting that CARE may be more efficacious in supporting teachers working in high-risk settings.

Jennings, A. (2011B). Promoting teachers' social and emotional competencies to support performance and reduce burnout. In A. Cohan & A. Honigsfeld (Eds.), *Breaking the Mold of Preservice and Inservice Teacher Education: Successful Practices for the Twenty-first Century* (pp.133–143). New York: Rowman & Littlefield.

Introduction

Teaching is more socially and emotionally demanding than it has ever been in the past. Growing numbers of children come to school unprepared and often at risk of mental health and behavioral problems (U.S. Department of Health and Human Services, 1999). Yet teachers are expected to provide emotionally responsive support to *all* students, cultivate a warm and nurturing classroom environment, model exemplary emotion regulation (sometimes in the midst of chaos), coach students through conflict situations with thoughtfulness and sensitivity, successfully (yet respectfully) manage the challenging behaviors of increasing numbers of disruptive students, and handle the growing demands imposed by standardized testing. Given these high expectations and demands, it is surprising that

teachers rarely receive training to address and successfully handle the social and emotional challenges of teaching. Since little, if any, professional development targets these important competencies, it is understandable that the rate of teacher burnout is increasing and that teachers are leaving the profession at an alarming rate. Indeed, teacher distress and its resulting attrition is a growing problem. In the United States, approximately half of all teachers leave the profession within their first five years of teaching, and teacher attrition costs U.S. public schools more than $7 billion per year (National Commission on Teaching and America's Future, 2007).

Soloway, G. B. (2011A). The praxis of mindfulness training in teacher education. Unpublished doctoral dissertation, University of Toronto, Ontario.

Abstract

The fields of medicine and health care continue to demonstrate the benefits of mindfulness-based practice for stress reduction and well-being. Research is also beginning to reveal the professional benefits of mindfulness training with human service professionals, as well as the impact with children and youth, and more broadly within the field of education and human development. This qualitative action research study uses a grounded theory approach to elucidate the added value of the Mindfulness-Based Wellness Education (MBWE) program within three main areas of teacher education: dispositional development, content knowledge, and instructional repertoire. Two years being engaged in the iterative process of teaching, interviewing teacher candidates, and program development brought forth five main themes: (1) Personal and Professional Identity, Reflective Practitioner, (3) Constructivist Learning & Holistic Vision of Teaching, (4) Social and Emotional Competence on Practicum, and (5) Engagement in Teacher Education. Additional findings outline key curricular and pedagogical components of the MBWE program that facilitate teacher candidate learning. Finally, a holistic model of pedagogical well-being presents an avenue for understanding the integration of mindful wellness into teacher education, and the K-12 classroom.

Soloway, G. B., Poulin, A., and Mackenzie, C. S. (2011B). "Preparing new teachers for the full catastrophe of the 21st century classroom: Integrating mindfulness training into initial teacher education". In A. Cohan and A. Honigsfeld (Eds.), *Breaking The Mold Of Pre-service And In-Service Teacher Education* (pp. 221–227). Lanham, MD: R and L Education.

Final Reflections

Cycles of harmful stress reactivity perpetuate themselves in the minds and bodies within our schools and systems of education. MBWE (Mindfulness-Based Wellness Education Program) provides an opportunity to break this cycle by providing teacher candidates with the skills they need to become mindful teachers and to create mindful classrooms. Mindfulness does not necessarily bring immediate change to challenging circumstances in our lives and classrooms; however, it does provide us with the freedom to choose the way we respond to whatever comes our way, and that is incredibly powerful and liberating—for teachers, for students, for all of us.

Gold, E., Smith, A., Hopper, I., Herne, D., Tansey, G., & Hulland, C. (2010). Mindfulness-based stress reduction (MBSR) for primary school teachers. *Journal of Child and Family Studies, 19,* 184-189.

Abstract

Stress within the teaching profession has a negative impact on the health and well-being of individual teachers and on retention and recruitment for the profession as a whole. There is increasing literature to suggest that Mindfulness is a useful intervention to address a variety of psychological problems, and that Mindfulness-Based Stress Reduction (MBSR) is a particularly helpful intervention for stress. We investigated the effects of teaching a MBSR course to primary school teachers to reduce stress. The MBSR course was taught to a group of primary school teachers and evaluated to establish its effects on levels of anxiety, depression, and stress, as well as movement towards a stated goal and changes in awareness. The results showed improvement for most participants for anxiety, depression, and stress, some of which were statistically significant. There were also significant improvements on two of the four dimensions of a mindfulness skills inventory. These results suggest that this approach could be a potentially cost-effective method to combat teacher stress and burnout.

Jennings, P. A., and Greenberg, M. T. (2009). "The prosocial classroom: Teacher social and emotional competence in relation to student and classroom outcomes". *Review of Educational Research, 79*, 491–525.

Abstract

The authors propose a model of the prosocial classroom that highlights the importance of teachers' social and emotional competence (SEC) and wellbeing in the development and maintenance of supportive teacher–student relationships, effective classroom management, and successful social and emotional learning program implementation. This model proposes that these factors contribute to creating a classroom climate that is more conducive to learning and that promotes positive developmental outcomes among students. Furthermore, this article

reviews current research suggesting a relationship between SEC and teacher burnout and reviews intervention efforts to support teachers' SEC through stress reduction and mindfulness programs. Finally, the authors propose a research agenda to address the potential efficacy of intervention strategies designed to promote teacher SEC and improved learning outcomes for students.

Poulin, P. (2009). Mindfulness-based wellness education: A longitudinal evaluation with students in initial teacher education. Doctoral Dissertation - University of Toronto.

Abstract

Mindfulness-based wellness education (MBWE) is an 8-week program teaching formal mindfulness practices as a foundation for cultivating an awareness of one's health or ill-health in the physical, social, emotional, ecological, vocational, mental and spiritual domains of human existence. It is designed as a health promotion intervention for individuals who are at risk of developing stress related problems, such as is the case of human services professionals. This dissertation focuses on teachers-in-training. Two groups of teacher trainees completed MBWE as part of an elective course focusing on stress and burnout. In comparison to control participants, who completed other optional courses, MBWE participants experienced improvements in mindfulness, health, and teaching self-efficacy. In one group, the intervention was also effective in reducing psychological distress and augmenting satisfaction with life. Interviews with participants after graduation revealed that although they struggled with independent mindfulness practice, they benefited from their participation in the class, which led to specific health behavior changes such as increased physical activity. Some participants reported that they relied on their mindfulness practices in times of crisis; others shared the knowledge they learned with their students and observed that this was an effective and beneficial response to the needs of their classrooms. Ideas for future inquiries include the need to explore factors influencing participants' responses to the MBWE program and how to support on-going practice.

IV. Mindfulness and Students

a) Mindfulness & Student Well-Being
b) Self-regulation and Achievement
c) Mindfulness & Urban Youth

Mindfulness & Student Well-Being

Summary
Well-being is not simply the absence of illness but the presence of positive health in mind and body (Ryff and Singer, 1998). Well-being is defined as the "combination of feeling good and functioning well" (Huppert and Johnson, 2009). The concept of "feeling good" involves the feeling of positive emotions such as happiness, interest, engagement, confidence, and affection. The concept of "functioning well" involves the development of self-autonomy, intrinsic motivation, and self-efficacy in addition to resilience when confronting challenges or negative emotions such as failure or grief. Self-autonomy, intrinsic motivation, and resilience are developed through reflective awareness and management of one's thoughts and relationships which are largely related to one's ability to possess empathy and kindness (Huppert and Johnson, 2009; Ryan and Deci, 2001).

Over the past years, research on well-being has shifted from a focus on treatment and prevention to an effort to enhance well-being for all, especially children (Huppert and Johnson, 2010). Mindfulness training has been shown to be one effective approach in enhancing the well-being of children (Huppert and Johnson, 2010; Saltzman, A., & Goldin, 2008). Ongoing mindfulness practice has the potential to promote sustainable well-being and resiliency in children by developing their ability to be aware of themselves and their surroundings without judgment and acceptance (Huppert and Johnson, 2010).

The below supporting research abstracts provides evidence of mindfulness practice effecting:
- Stress, well-being, and behavior in elementary school children (Van de Weijer-Bergsma et al., 2012)
- Well-being, agreeableness, and emotional stability in adolescent boys in a classroom setting (Huppert & Johnson, 2010)
- Increases in optimism in pre- and early adolescent students in the 4th to 7th grades (Schonert-Reichl & Lawlor, 2010)
- Decreased negative affect and increased feelings of calmness, relaxation, and self-acceptance in adolescent girls (Broderick & Metz, 2009)

Van de Weijer-Bergsma, E., Langenberg, G., Brandsma, R., Oort, F.J., & Bögels, S.M. (2012). The effectiveness of a school-based mindfulness training as a program to prevent stress in elementary school children. Mindfulness. Published online 21 November, 2012.

Abstract
Studies on the effects of mindfulness interventions on mental health and behavioral problems in children show promising results, but are primarily conducted with selected samples of children. The few studies investigating school-based interventions used self-selected samples, provided training outside of the classroom, and did not report longer-term effects. The immediate and longer-term effects of a class-based mindfulness intervention for elementary school children were investigated as a primary prevention program (MindfulKids) to reduce stress and stress-related mental health and behavioral problems. Children (8–12 years) from three elementary schools participated. Classes were randomized to an immediate-intervention group (N = 95) or a waitlist-control group (N = 104), which received the intervention after a waitlist period. Twelve 30-min sessions were delivered in 6 weeks. At baseline, pretest, posttest, and follow-up, variables indicative of stress and metal well-being were assessed with children, variables indicative of mental health problems were assessed with parents, and teachers reported on class climate. Multilevel analysis revealed that there were no significant changes from baseline to pretest. Some primary prevention effects on stress and well-being were found directly after training and some became more apparent at follow-up. Effects on mental health problems also became apparent at follow-up. MindfulKids seems to have a primary preventive effect

on stress, well-being, and behavior in schoolchildren, as reported by children and parents. Exploratory analysis revealed that children who ruminate more are affected differently by the intervention than children who ruminate less. It is concluded that mindfulness training can be incorporated in elementary schools at the class level, letting all children benefit from the intervention.

Huppert, F.A. and Johnson, D.M. (2010). A controlled trial of mindfulness training in schools: The importance of practice for an impact on well-being. *The Journal of Positive Psychology, 5*(4), 264-274.

Abstract

We report the results of a short programme of mindfulness training administered to adolescent boys in a classroom setting. Intervention and control groups (*N* = 155) were compared on measures of mindfulness, resilience and psychological well-being. Although the overall differences between the two groups failed to reach significance, we found that within the mindfulness group, there was a significant positive association between the amount of individual practice outside the classroom and improvement in psychological well-being and mindfulness. We also found that the improvement in well-being was related to personality variables (agreeableness and emotional stability). Most students reported enjoying and benefiting from the mindfulness training, and 74% said they would like to continue with it in the future. The results of this preliminary study are encouraging. Further work is needed to refine the training programme and undertake a definitive randomized controlled trial, using both subjective and objective outcome measures, with long-term follow-up.

Schonert-Reichl, K.A., & Lawlor, M.S. (2010). The effects of a mindfulness-based education program on pre- and early adolescents' well-being and social and emotional competence. *Mindfulness*, *1*(3), 137–151.

Abstract

We report the results of a quasi-experimental study evaluating the effectiveness of the Mindfulness Education (ME) program. ME is a theoretically derived, teacher-taught universal preventive intervention that focuses on facilitating the development of social and emotional competence and positive emotions, and has as its cornerstone daily lessons in which students engage in mindful attention training (three times a day). Pre- and early adolescent students in the 4th to 7th grades (N=246) drawn from six ME program classrooms and six comparison classrooms (wait-list controls) completed pretest and posttest self-report measures assessing optimism, general and school self-concept, and positive and negative affect. Teachers rated pre- and early adolescents on dimensions of classroom social and emotional competence. Results revealed that pre- and early adolescents who participated in the ME program, compared to those who did not, showed significant increases in optimism from pretest to posttest. Similarly, improvements on dimensions of teacher rated classroom social competent behaviors were found favoring ME program students. Program effects also were found for self-concept, although the ME program demonstrated more positive benefits for preadolescents than for early adolescents. Teacher reports of implementation fidelity and dosage for the mindfulness activities were high and teachers reported that they were easily able to integrate the mindful attention exercises within their classrooms. Theoretical issues linking mindful attention awareness to social and emotional competence and implications for the development of school-based interventions are discussed.

Broderick, P.C., & Metz, S. (2009). Learning to BREATHE: A pilot trial of a mindfulness curriculum for adolescents. *Advances in School Mental Health Promotion*, *2*(1), 35–55.

Abstract

This study reports the results of a pilot trial of Learning to BREATHE, a mindfulness curriculum for adolescents created for a classroom setting. The primary goal of the program is to support the development of emotion regulation skills through the practice of mindfulness, which has been described as intentional, non-judgmental awareness of present-moment experience. The total class of 120 seniors (average age 17.4 years) from a private girls' school participated as part of their health curriculum. Relative to controls, participants reported decreased negative affect and increased feelings of calmness, relaxation, and self-acceptance. Improvements in emotion regulation and decreases in tiredness and aches and pains were significant in the treatment group at the conclusion of the program. Qualitative feedback indicated a high degree of program satisfaction. The results suggest that mindfulness is a potentially promising method for enhancing adolescents' emotion regulation and well-being.

Mindfulness, Self-Regulation and Achievement

Summary
Self-regulated learning is the ''active, constructive process whereby learners set goals for their learning and then attempt to monitor, regulate, and control their cognition, motivation, and behavior, guided and constrained by their goals and the contextual features in the environment'' (Pintrich, 2000, p. 453). Self-regulation among students improves adaptive personality traits (Tangney et al., 2004), the ability to regulate goal initiation and completion (Brown and Ryan 2003; Brown et al. 2007; Shapiro and Schwartz 1999, 2000), and academic performance (e.g., Zimmerman 2008). Student procrastination or failure to complete goals has been associated with a declined capacity to self-regulate (Steel, 2007).

Mindfulness practice has been shown to improve self-regulation associated with achievement (Brown and Ryan, 2003; Evans et al. 2009; Radel et al. 2009; Shao and Skarlicki, 2009), such as attentional control (Napoli et al., 2005; Philippot and Segal, 2009) and goal striving (Brown et al., 2007). Mindfulness also correlates with working memory capacity (Jha et al., 2010), persistence on problem solving tasks (Evans et al., 2009), cognitive flexibility and control (Heeren et al., 2009) and can even serve as a predictor of grade point average (Shao and Skarlicki, 2009).

The below supporting research abstracts provides evidence of mindfulness practice effecting:
- Inhibitory control in early adolescents in the fourth and fifth grade (Oberle et al., 2012)
- Self-regulation in early childhood (Zelazo & Lyons, 2012)
- Executive function in third graders (Flook et al., 2010)
- Reductions in attention, behavioral, and anxiety symptoms in 9-13 year old children (Semple et al., 2010)
- Reductions in anxiety, enhanced social skills, and improved academic performance in adolescents diagnosed with a learning disability (Beauchemin, Hutchins, & Patterson (2008)
- An increased state of restful alertness and greater capacity for self-reflection, self-control, and flexibility as well as improved academic performance in seventh grade students (Rosaen & Benn, 2006)
- Attention in first, second, and third grade students' (Napoli, Krech, & Holley, 2005)
- Increased academic achievement, attention capacities, academic engagement, social relatedness, teacher self-efficacy, and decreased behavior problems in 2nd and 3rd graders (Beigel and Brown, n.d.)

Oberle E. , Schonert-Reichl K. , Lawlor M. S., & Thomson K. 2012. Mindfulness and inhibitory control in early adolescence. *The Journal of Early Adolescents, 32*(4), 565-588.

Abstract
This study examined the relationship between the executive control process of inhibition and self-reported dispositional mindfulness, controlling for gender, grade, and cortisol levels in 99 (43% female) fourth- and fifth-graders (X– = 10.23 years, *SD* = 0.53). Students completed a measure of mindful attention awareness and a computerized executive function (EF) task assessing inhibitory control. Morning cortisol levels also were collected and were used as an indicator of neuroendocrine regulation. Hierarchical regression analyses revealed that, after controlling for gender, grade, and cortisol levels, higher scores on the mindfulness attention awareness measure significantly predicted greater accuracy (% correct responses) on the inhibitory control task. This research contributes to understanding the predictors of EF skills in early adolescents' cognitive development. Specifically, it identifies mindfulness— a skill that can be fostered and trained in intervention programs to promote health and well-being—as significantly related to inhibitory processes in early adolescence.

Zelazo, P.D., & Lyons, K.E. (2012). The potential benefits of mindfulness training in early childhood: A developmental social cognitive neuroscience perspective. *Child Development Prospectives, 0*(0), 1-7.

Abstract

Early childhood is marked by substantial development in the self-regulatory skills supporting school readiness and socio emotional competence. Evidence from developmental social cognitive neuroscience suggests that these skills develop as a function of changes in a dynamic interaction between more top-down (controlled) regulatory processes and more bottom-up (automatic) influences on behavior. Mindfulness training—using age-appropriate activities to exercise children's reflection on their moment- to-moment experiences—may support the development of self-regulation by targeting top-down processes while lessening bottom-up influences (such as anxiety, stress, curiosity) to create conditions conducive to reflection, both during problem solving and in more playful, exploratory ways.

Flook, L., Smalley, S.L., Kitil, M.J., Galla, B.M., Kaiser-Greenland, S., Locke, J., Ishijima, E., & Kasari, C. (2010). Effects of mindful awareness practices on executive functions in elementary school children. *Journal of Applied School Psychology*, *26*, 70–95.

Abstract

A school-based program of mindful awareness practices (MAPs) was evaluated in a randomized control study of 64 second- and third-grade children ages 7–9 years. The program was delivered for 30 minutes, twice per week, for 8 weeks. Teachers and parents completed questionnaires assessing children's executive function immediately before and following the 8-week period. Multivariate analysis of covariance on teacher and parent reports of executive function (EF) indicated an interaction effect between baseline EF score and group status on posttest EF. That is, children in the MAPs group who were less well regulated showed greater improvement in EF compared with controls. Specifically, those children starting out with poor EF who went through the MAPs training showed gains in behavioral regulation, metacognition, and overall global executive control. These results indicate a stronger effect of MAPs on children with executive function difficulties. The finding that both teachers and parents reported changes suggests that improvements in children's behavioral regulation generalized across settings. Future work is warranted using neurocognitive tasks of executive functions, behavioral observation, and multiple classroom samples to replicate and extend these preliminary findings.

Semple, R.J., Lee, J., Rosa, D., & Miller, L.F. (2010). A randomized trial of Mindfulness-based cognitive therapy for children: Promoting mindful attention to enhance social emotional resiliency in children. *Journal of Child and Family Studies, 19,* 218-229.

Abstract

Mindfulness-based cognitive therapy for children (MBCT-C) is a manualized group psychotherapy for children ages 9-13 years old, which was developed specifically to increase social-emotional resiliency through the enhancement of mindful attention. Program development is described along with results of the initial randomized controlled trial. We tested the hypotheses that children randomized to participate in MBCT-C would show greater reductions in (a) attention problems, (b) anxiety symptoms, and (c) behavior problems than wait-listed age and gender-matched controls. Participants were boys and girls aged 9-13 (N = 25), mostly from low-income, inner-city households. Twenty-one of 25 children were ethnic minorities. A randomized cross-lagged design provided a wait-listed control group, a second trial of MBCT-C, and a 3-month follow-up of children who completed the first trial. Measures included the Child Behavior Checklist, State-Trait Anxiety Inventory for Children, and Multidimensional Anxiety Scale for Children. Participants who completed the program showed fewer attention problems than wait-listed controls and those improvements were maintained at three months following the intervention [F (1, 1, 18) = 5.965, p = 0.025, Cohen's d = 0.42]. A strong relationship was found between attention problems and behavior problems (r = 0.678, p less than 0.01). Reductions in attention problems accounted for 46% of the variance of changes in behavior problems, although attention changes proved to be a non-significant mediator of behavior problems (p = 0.053). Significant reductions in anxiety symptoms and behavior problems were found for those children who reported clinically elevated levels of anxiety at pretest (n = 6). Results show that MBCT-C is a promising intervention for attention and behavior problems, and may reduce childhood anxiety symptoms.

Beauchemin, J., Hutchins, T. L., & Patterson, F. (2008). Mindfulness meditation may lessen anxiety, promote social skills, and improve academic performance among adolescents with learning difficulties. *Complementary Health Practice Review, 13*, 34–45.

Abstract

Students with learning disabilities (LD defined by compromised academic performance) often have higher levels of anxiety, school-related stress, and less optimal social skills compared with their typically developing peers. Previous health research indicates that meditation and relaxation training may be effective in reducing anxiety and promoting social skills. This pilot study used a pre—post no-control design to examine feasibility of, attitudes toward, and outcomes of a 5-week mindfulness meditation intervention administered to 34 adolescents diagnosed with LD. Post intervention survey responses overwhelmingly expressed positive attitudes toward the program. All outcome measures showed significant improvement, with participants who completed the program demonstrating decreased state and trait anxiety, enhanced social skills, and improved academic performance. Although not directly assessed, the outcomes are consistent with a cognitive-interference model of learning disability and suggest that mindfulness meditation decreases anxiety and detrimental self-focus of attention, which, in turn, promotes social skills and academic outcomes.

Napoli, M., Krech, P., & Holley, L. (2005). Mindfulness training for elementary school students: the attention academy. Journal of Applied School Psychology, 21(1), 99-125.

Abstract

Mindfulness is the cognitive propensity to be aware of what is happening in the moment without judgment or attachment to any particular outcome. This concept flies in the face of modern, Western philosophical outcomes-based thinking about events and activities. This article presents results of a formative evaluation of whether participation in a mindfulness training program affected first, second, and third grade students' outcomes on measures of attention. The training was designed and intended to help students learn to focus and pay attention. The 24-week training employed a series of exercises including breath work, body scan, movement, and sensorimotor awareness activities. Results from three attentional measures administered to the students show significant differences between those who did and did not participate in mindfulness practice training. Results are discussed and recommendations are made for future work in this developing field of interest.

The data from this experiment provided initial support for the predication made, based on previous supporting literature, that a difference for group performance would be evident through the practice of mindfulness practice training. The results showed a statistically significant difference between experimental and control groups as assessed by the measures. It appears that an increase in selective attention or the ability to choose what to pay attention to, and a reduction of both test anxiety and teachers' rating of students' ADHD behaviors provided the greatest variance in terms of performance improvements.

Biegel, G.M., & Brown, K.W. (n.d.). Assessing the efficacy of an adapted in-class mindfulness-based training program for school-age children: A pilot study. In *A Research Brief for Mindful Schools*. Retrieved from: www.mindfulschools.org/pdf/Mindful%20Schools%20Pilot%20Study%20Whitepaper.pdf.

Purpose of Study

The pilot study described in this whitepaper sought to assess whether the Mindful Schools program, an in-class mindfulness training intervention, would be related to increased academic achievement, attention capacities, academic engagement, social relatedness, teacher self-efficacy, and decreased behavior problems among 79 school-age children in 2nd and 3rd grades. The Mindful Schools program was offered for 5 weeks—3 sessions a week for 15 minutes per session—at Berkley Maynard Academy (an elementary school in Oakland, California) for a total of 3 hours and 45 minutes of in-class training with students and teachers present. The students received training in the following mindfulness-based activities: listening, breathing, movement, walking, eating, seeing, emotions, test taking, activities of daily living, and lessons on the promotion of kindness and caring. The results showed that the mindfulness intervention was related to increased executive control, improved social skills and teacher rated academic competence of children.

Mindfulness & Urban Youth

Summary
Urban youth are constantly dealing with stressors related to poverty, underserved educational systems, and interpersonal violence (Mendelson et al., 2010). These environmental stressors lead to poor academic performance and obstacles in social and emotional development among urban youth (Reynolds et al., 2001). In fact, research has shown that 1/4 of impoverished youth are socially and emotionally compromised as compared to more economically-advantaged youth (Keenan et al., 1977). Furthermore, a study by Anderson and Tiecher, showed that children faced with adversity and chronic stressors show impairment in their stress response systems (Andersen and Teicher 2009), which harms a child's ability to emotionally self-regulate and deal with challenges in life (West et al., 2001). Mindfulness practice among urban youth has been shown to improve the social-emotional development of chronically-stressed youth and their ability to respond to adversity and stress through cultivating a child's capacity for attention and awareness (Mendelson et al., 2010).

The below supporting research abstracts provides evidence of mindfulness practice effecting:
- Reductions in stress and improved behavior in at-risk elementary students (Klatt et al., 2012)
- Reduction in hostility, general discomfort, and emotional discomfort and improvements in interpersonal relationships (including less conflict), school achievement, physical health, and reduced stress in human immunodeficiency virus (HIV)-infected and at-risk urban youth (Sibinga et al., 2011)
- Stress including rumination, intrusive thoughts, and emotional arousal in urban youth (Mendelson et al, 2010)

Klatt, M., Browne E., Harpster K., & Case-Smith, J. (2012). Sustained effects of a mindfulness-based classroom intervention on behavior in urban, underserved children. BMC Complementary and Alternative Medicine 2012, 12(Suppl 1):P305

Purpose: To investigate the initial and sustained effects of Move- Into-Learning (MIL), an 8-week Mindfulness-Based Intervention (MBI), delivered in the classroom, that utilized yoga movement, music, written and visual arts, designed to reduce stress and improve behavior in at-risk elementary students.

Methods: MIL was implemented in a low income, urban neighborhood with 3rd grade students (n=41) in a school under academic emergency with many behavior problems. A pre to post test single group design with a 2 month follow up measure was used to investigate the behavioral changes in the children. The MIL program utilized a standardized protocol consisting of mindfulness meditation, yoga movement/breathing in harmony with music, and appreciative inquiry (AI) exercises that required students to express themselves in the written and visual arts. Students were evaluated by their classroom teacher pre/post MIL intervention using the Connors Behavior Rating Scale, identifying problem behaviors that had occurred in the month prior to the assessments.

Results: Children in the intervention group showed significant improvement in hyperactivity ($F [1,40]=10.18$; $p= .002$), and highly significant differences in the ADHD index ($F [1,40]= 27.0$; $p<.001$), and cognitive/inattentiveness ($F [1,40]=35.50$; $p<.001$) subscales with medium to large effect sizes. In the two month post-intervention measure ($n=20$), the ADHD index, and hyperactivity continued to improve between the post intervention and the two month follow up, while cognitive/inattentive behaviors ($F(1,19)=8.56$; $p=.01$) significantly improved.

Conclusion: Teachers, administrators, and parents may all recognize a child whose behavior is negatively impacted by stress, but they may not be familiar with programs that can effectively provide strategies for stress reduction. MIL is one such program, providing research to practice evidence of effective stress reduction, feasible for classroom delivery, with outcome data supporting improved behavior for at-risk children, with effects sustained beyond the intervention.

Sibinga, E., Kerrigan, D., Stewart, M., Johnson, K., Magyari, T., & Ellen, J. (2011). "Mindfulness-based stress reduction for urban youth." *Journal of Alternative and Complementary Medicine, 17* (3), 213-218.

Abstract

Objectives: The objectives of this study were to assess the general acceptability and to assess domains of potential effect of a mindfulness-based stress reduction (MBSR) program for human immunodeficiency virus (HIV)-infected and at-risk urban youth.

Methods: Thirteen-to twenty-one-year-old youth were recruited from the pediatric primary care clinic of an urban tertiary care hospital to participate in 4 MBSR groups. Each MBSR group consisted of nine weekly sessions of MBSR instruction. This mixed-methods evaluation consisted of quantitative data--attendance, psychologic symptoms (Symptom Checklist 90-Revised), and quality of life (Child Health and Illness Profile-Adolescent Edition)--and qualitative data--in-depth individual interviews conducted in a convenience sample of participants until interview themes were saturated. Analysis involved comparison of pre- and post-intervention surveys and content analysis of interviews.

Results: Thirty-three (33) youth attended at least one MBSR session. Of the 33 who attended any sessions, 26 youth (79%) attended the majority of the MBSR sessions and were considered "program completers." Among program completers, 11 were HIV-infected, 77% were female, all were African American, and the average age was 16.8 years. Quantitative data show that following the MBSR program, participants had a significant reduction in hostility ($p = 0.02$), general discomfort ($p = 0.01$), and emotional discomfort ($p = 0.02$). Qualitative data ($n = 10$) show perceived improvements in interpersonal relationships (including less conflict), school achievement, physical health, and reduced stress.

Conclusions: The data suggest that MBSR instruction for urban youth may have a positive effect in domains related to hostility, interpersonal relationships, school achievement, and physical health. However, because of the small sample size and lack of control group, it cannot be distinguished whether the changes observed are due to MBSR or to nonspecific group effects. Further controlled trials should include assessment of the MBSR program's efficacy in these domains.

Mendelson, T. Greenberg, M.T. Dariotis, J.K. Gould, L.F. Rhoades, B.L. and Leaf, P.J. (2010) Feasibility and preliminary outcomes of a school-based mindfulness intervention for urban youth. *Journal of Abnormal Child Psychology, 38* 985-994.

Abstract

Youth in underserved, urban communities are at risk for a range of negative outcomes related to stress, including social-emotional difficulties, behavior problems, and poor academic performance. Mindfulness-based approaches may improve adjustment among chronically stressed and disadvantaged youth by enhancing self-regulatory capacities. This paper reports findings from a pilot randomized controlled trial assessing the feasibility, acceptability, and preliminary outcomes of a school-based mindfulness and yoga intervention. Four urban public schools were randomized to an intervention or wait-list control condition (n=97 fourth and fifth graders, 60.8% female). It was hypothesized that the 12-week intervention would reduce involuntary stress responses and improve mental health outcomes and social adjustment. Stress responses, depressive symptoms, and peer relations were assessed at baseline and post-intervention. Findings suggest the intervention was attractive to students, teachers, and school administrators and that it had a positive impact on problematic responses to stress including rumination, intrusive thoughts, and emotional arousal.

V. Mindfulness & the Treatment of Mental Health Disorders in Youth

A. ADHD
B. Anxiety
C. Conduct Disorder/Aggressive Behavioral Disorders

ADHD

Summary
Children with Attention Deficit Hyperactivity Disorder (ADHD) have difficulty maintaining attention over long periods of time and display age-appropriate symptoms of attention, hyperactivity, and impulsive behavior (Vollestad, Nielsen, & Nielsen, 2012 ; American Psychiatric Association, 2000). ADHD has been shown to have a negative influence on executive functions (EF) that involve processes such as planning, directing, and carrying out goals (Flook et al., 2010). Poor EF has been associated with cognitive deficits, poor socio-emotional adjustment, and poor academic functioning (Flook et al., 2010).

Mindfulness-based meditation enhances awareness of one's automatic responses, distractibility, impulsivity, and hyperactivity allowing people with ADHD to maintain attention and develop their cognitive control and working memory (Vollestad, Nielsen, & Nielsen, 2012; Teasdale et al. 1995). Studies have shown that mindfulness meditation improves executive functioning (Heeren and Philippot 2011; Semple 2010; Flook et al., 2010;) and symptoms of ADHD in children and adolescents (Grosswald et al. 2008; Zylowksa et al. 2008).

Additionally, The below supporting research abstracts provides evidence of mindfulness practice effecting:
- Reductions in ADHD symptoms in children aged 8-12 with ADHD (Vand der Oord, Bogels, & Peijnenburg, 2012)
- Decreases in levels of impulsivity (Kratter, 1983)
- ADHD symptoms and test performance in adults and adolescents with ADHD (Zylowska et al., 2007)

Van der Oord, S., Bogels, S. M., & Peijnenburg, D. (2012). The effectiveness of mindfulness training for children with ADHD and mindful parenting for their parents. *Journal of Child and Family Studies, 21,* 139-147.

Abstract
This study evaluated the effectiveness of an 8-week mindfulness training for children aged 8–12 with ADHD and parallel mindful parenting training for their parents. Parents (N = 22) completed questionnaires on their child's ADHD and ODD symptoms, their own ADHD symptoms, parenting stress, parental over reactivity, permissiveness and mindful awareness before, immediately after the 8-week training and at 8-week follow-up. Teachers reported on ADHD and ODD behavior of the child. A within-group waitlist was used to control for the effects of time and repeated measurement. Training was delivered in group format. There were no significant changes between wait-list and pre-test, except on the increase of teacher-rated ODD behavior. There was a significant reduction of parent-rated ADHD behavior of themselves and their child from pre-to post-test and from pre- to follow-up test. Further, there was a significant increase of mindful awareness from pre-to post-test and a significant reduction of parental stress and over reactivity from pre-to follow-up test. Teacher-ratings showed non-significant effects. Our study shows preliminary evidence for the effectiveness of mindfulness for children with ADHD and their parents, as rated by parents. However, in the absence of substantial effects on teacher-ratings, we cannot ascertain effects are due to specific treatment procedures.

Zylowska, L., Ackerman, D. L., Yang, M. H., Futrell, J. L., Horton, N. L., Hale, S. T., et al. (2007). Mindfulness meditation training with adults and adolescents with ADHD. *Journal of Attention Disorders, 11*(6), 737–746.

Abstract

Objective: ADHD is a childhood-onset psychiatric condition that often continues into adulthood. Stimulant medications are the mainstay of treatment; however, additional approaches are frequently desired. In recent years, mindfulness meditation has been proposed to improve attention, reduce stress, and improve mood. This study tests the feasibility of an 8-week mindfulness training program for adults and adolescents with ADHD.

Method: Twenty-four adults and eight adolescents with ADHD enrolled in a feasibility study of an 8-week mindfulness training program.

Results: The majority of participants completed the training and reported high satisfaction with the training. Pre—post improvements in self-reported ADHD symptoms and test performance on tasks measuring attention and cognitive inhibition were noted. Improvements in anxiety and depressive symptoms were also observed.

Conclusion: Mindfulness training is a feasible intervention in a subset of ADHD adults and adolescents and may improve behavioral and neurocognitive impairments. A controlled clinical study is warranted.

Kratter, J. (1983). The use of meditation in the treatment of attention deficit disorder with hyperactivity. D*issertation Abstracts International, 44,* 1965.

Abstract

A total of 24 children, meeting several criteria for being diagnosed as having an attention deficit disorder with hyperactivity, were selected for study. Children were assigned to one of three conditions: a meditation-training group, a progressive-muscle-relaxation group, or a waiting-list control group. Subjects in the training groups were seen on an individual basis for 20 minutes twice weekly for a period of 4 weeks. Meditating subjects sat with eyes closed, breathed slowly and deeply, and repeated the Sanskrit word "ahnam" ("nameless") first out loud and then silently for periods gradually increasing in duration from 2 to 8 minutes. Relaxing subjects tensed and relaxed hands, forearms, biceps, triceps, shoulders, stomach, thighs, and calves in periods increasing from 2 to 8 minutes. Results indicated that both the meditation-training and relaxation-training groups showed significant decreases in levels of impulsivity. No change in impulsivity was found in the control group. In the measures of selective deployment of attention and freedom from distractibility, only meditation training resulted in significant improvement. Parent rating scales reflected a significant improvement in the behavior of children in both the meditation-training and relaxation-training groups. The Locus of Control Scale failed to show significant changes over the course of the study for any of the groups.

Anxiety

Summary

Anxiety can impair attention and disrupt information processing leading to emotionally reactive behaviors. Anxiety is conceptualized as an overestimation of danger and underestimation of the ability to cope with perceived threats (Vollestad, Nielsen, & Nielsen, 2012; Lee et al., 2008; Semple, Reid, & Miller, 2005). Individuals facing anxiety often turn to unhealthy emotional self-regulation methods such as non-acceptance and avoidance to cope with their emotional experiences (Edenfield & Saeed, 2012; Semple, Reid, & Miller, 2005).

Mindfulness-based treatment for anxiety has been proven to be effective through the process of reappraisal (Holzel et al. 2011; Garland, Gaylord, & Frederickson, 2011). Reappraisal is the reframing of emotion-eliciting experiences and the alteration of its impact. Reappraisal strategies are taught through the ongoing mindfulness practice of nonjudgmental acceptance of one's emotional experiences. Studies have shown that mindfulness practice teaches individuals with anxiety nonjudgmental and acceptance-based strategies to be aware of their emotions without over identifying or overreacting to them. This ultimately alters the impact of the emotional experience, in other words, it allows for reappraisal to occur (Semple, Reid, & Miller, 2005).

Mindfulness-based interventions also address the avoidance of emotional experiences by allowing for distress rather than trying to remove it or control it. This contrasts from the currently used Cognitive behavioral therapy (CBT) which emphasizes the identification and replacement of a patients distorted

thinking with beneficial cognition's (Vollestad, Nielsen, & Nielsen, 2012). Both CBT and Mindfulness-based interventions have been shown to minimize avoidance strategies and improve symptoms of anxiety, however, mindfulness-based interventions have been recently argued as a more gentle and flexible method for treating anxiety (Vollestad, Nielsen, & Nielsen, 2012).

The below supporting research abstracts provides evidence of mindfulness practice effecting:

- Reductions in symptoms of anxiety, depression, and somatic distress, and increased self-esteem and sleep quality in adolescents age 14 to 18 years (Biegel et al., 2009)
- Treatment of internalizing and externalizing symptoms in children ages 9 to 12 (Lee, Semple, Rosa, & Miller, 2008)
- Treatment of anxiety in children aged 7 to 8 years old (Semple, Reid, & Miller, 2005)

Biegel, G.M., Brown, K.W., Shapiro, S.L., & Schubert, C.M. (2009). Mindfulness-based stress reduction for the treatment of adolescent psychiatric outpatients: a randomized clinical trial. *Journal of Consulting and Clinical Psychology*, *77*(5), 835–866.

Abstract

Research has shown that mindfulness-based treatment interventions may be effective for a range of mental and physical health disorders in adult populations, but little is known about the effectiveness of such interventions for treating adolescent conditions. The present randomized clinical trial was designed to assess the effect of the mindfulness-based stress reduction (MBSR) program for adolescents age 14 to 18 years with heterogeneous diagnoses in an outpatient psychiatric facility (intent-to-treat N = 102). Relative to treatment-as-usual control participants, those receiving MBSR self-reported reduced symptoms of anxiety, depression, and somatic distress, and increased self-esteem and sleep quality. Of clinical significance, the MBSR group showed a higher percentage of diagnostic improvement over the 5-month study period and significant increases in global assessment of functioning scores relative to controls, as rated by condition-naïve clinicians. These results were found in both completer and intent-to-treat samples. The findings provide evidence that MBSR may be a beneficial adjunct to outpatient mental health treatment for adolescents.

Lee, J., Semple, R.J, Rosa, D., & Miller, L. (2008). Mindfulness-based cognitive therapy for children: results of a pilot study. *Journal of Cognitive Psychotherapy, 22*(1), 15-28.

Abstract

The purpose of this study was to evaluate the feasibility, acceptability, and helpfulness of Mindfulness-Based Cognitive Therapy for Children (MBCT-C) for the treatment of internalizing and externalizing symptoms in a sample of non-referred children. Twenty-five children, ages 9 to 12, participated in the 12-week intervention. Assessments were conducted at baseline and post treatment. Open trial analyses found preliminary support for MBCT-C as helpful in reducing internalizing and externalizing symptoms within subjects on the parent report measure. The high attendance rate (Intent-to-Treat sample, 78%; Completer sample, 94%), high retention rate (68%), and positive ratings on program evaluations supported treatment feasibility and acceptability. Overall, this pilot study offers feasibility and acceptability data for MBCT-C as a potential treatment for internalizing and externalizing symptoms in children. Further research is needed to test the efficacy of the intervention with a larger sample of children who meet diagnostic criteria for clinical disorders.

Semple, R.J., Reid, E., & Miller, L. (2005). Treating anxiety with mindfulness: An open trial of mindfulness training for anxious children. *Journal of Cognitive Psychotherapy, 19*(4), 379-392.

Abstract

This study is an open clinical trial that examined the feasibility and acceptability of a mindfulness training program for anxious children. We based this pilot initiative on a cognitively oriented model, which suggests that, since impaired attention is a core symptom of anxiety, enhancing self-management of attention should effect reductions in anxiety. Mindfulness practices are essentially attention enhancing techniques that have shown promise as clinical treatments for adult anxiety and depression {Baer, 2003). However, little research explores the potential benefits of mindfulness to treat anxious children. The present study provided preliminary support for our model of treating childhood anxiety with mindfulness. A 6-week trial was conducted with five anxious children aged 7 to 8 years old. The results of this study suggest that mindfulness can be taught to children and holds promise as an intervention for anxiety symptoms. Results suggest that clinical improvements may be related to initial levels of attention.

Conduct Disorder

Summary
Conduct disorder in adolescents is defined as a repetitive and persistent behavioral violation of major societal norms or rules (American Psychiatric Association, 2000, p. 93). In order for a child or adolescent to be diagnosed with conduct disorder he or she must have displayed 3 of the following 15 criterion behaviors of which are divided into four groups:

1. Aggressive conduct that threatens physical harm to other people or animals (bullying, fighting, using a weapon, being physically cruel to others, being physically cruel to animals, stealing while confronting the victim, initiating forced sexual activity);
2. Non-aggressive conduct that causes property loss or damage (fire setting, engaging in other destruction of property);
3. Deceitfulness or theft (breaking and entering, lying for personal gain, stealing without confronting the victim); and
4. Serious violations of rules (before age 13: running away from home and being truant) (Singh et. al., 2007; The Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition–Text Revision).

Currently, psychotropic medication and cognitive behavioral are both used to treat conduct disorder. However, a well-known mindfulness-based intervention by Singh et al. called Meditation on the Soles of the Feet is growing in popularity and has been shown to be effective in teaching the self-control of aggression (Singh et al., 2007). This intervention has helped people control their aggression through the technique of focusing on the aggressive thought and calmly shifting that attention to the soles of their feet, an emotionally neutral part of the body. Despite the positive results of the intervention, more research still needs to be done on mindfulness and the treatment of conduct disorder and other aggressive behavioral disorders.

The below supporting research abstracts provides evidence of mindfulness practice effecting:
- Reduction in aggressive behavior in adolescents (Singh et al., 2007)

Singh, N., Lancioni, G.E., Joy, S.D.S., Winton, A.S.W., Sabaawi, M., Wahler, R.G., & Singh, J. (2007). Adolescents with Conduct Disorder Can Be Mindful of Their Aggressive Behavior. *Journal of Emotional and Behavioral Disorders, 15*(1), 56-63.

Abstract
Adolescents with conduct disorder frequently engage in aggressive and disruptive behaviors. Often these behaviors are controlled or managed through behavioral or other psychosocial interventions. However, such interventions do not always ensure lasting changes in an adolescent's response repertoire so that he or she does not engage in aggression when exposed to the same situations that gave rise to the behavior previously. Mindfulness training provides a treatment option that helps an individual focus and attend to conditions that give rise to maladaptive behavior. Using a multiple baseline design, we assessed the effectiveness of a mindfulness training procedure in modulating the aggressive behavior of three adolescents who were at risk of expulsion from school because of this behavior. The adolescents were able to learn the mindfulness procedure successfully and use it in situations that previously occasioned aggressive behavior. This led to large decreases in the aggression of all three individuals. Follow-up data showed that the adolescents were able to keep their aggressive behavior at socially acceptable levels in school through to graduation. Maladaptive behaviors, other than aggression, that the adolescents chose not to modify, showed no consistent change during mindfulness training, practice, and follow-up.

VI. Measuring Mindfulness

Summary
Below you can find a collection of mindfulness measurement tools separated by measurements for children and adults.

The below supporting research abstracts include mindfulness measures that assess the following outcomes:

Children
- Quality of life, academic competence, and social skills, internalizing symptoms, and externalizing behavior problems in school-aged children and adolescents (Greco, Baer, & Smith, 2011 – CAMM)
- Life satisfaction, well-being, self-regulation, openness to experience, conscientiousness, agreeableness and more in adolescents aged 14 to 18 years (Brown et al., 2011 – MAAS-A)

Adults
- Self-regulation and well-being in adults (Brown & Ryan, 2003 – MAAS)
- Mindfulness, distress, well-being, emotion-regulation, and problem-solving approaches in university students (Feldman et al., 2007- CAMS-R)
- Emotional intelligence and regulation, attention, thought suppression, awareness, perception, experiential avoidance and more in undergraduate students (Baer et al., 2006 – FFMQ)
- Presence or absence of awareness, thought suppression, rumination, reflection, the ability to accept undesirable thoughts and feelings while pursuing desired goals and more in undergraduate students (Cardaciotto et al., 2008 – PMS)
- Awareness, allowing attention to remain with difficult cognitions, accepting difficult thoughts/images, letting difficult cognitions pass versus rumination/worry and more in undergraduate students (Chadwick et al., 2008 – SMQ)
- Self-awareness, cognitive failures, dissociative experiences, openness to experience, and more in adults (Lao et al., 2006 – TMS)

Measurements for Children

The Child Acceptance and Mindfulness Measure (CAMM)

Greco, L. A., Baer, R. A., & Smith, G. T. (2011). Assessing mindfulness in children and adolescents: Development and validation of the Child and Adolescent Mindfulness Measure (CAMM). *Psychological Assessment, 23*(3), 606–614.

Abstract
This article presents 4 studies (N = 1,413) describing the development and validation of the Child and Adolescent Mindfulness Measure (CAMM). In Study 1 (n = 428), the authors determined procedures for item development and examined comprehensibility of the initial 25 items. In Study 2 (n = 334), they reduced the initial item pool from 25 to 10 items through exploratory factor analysis. Study 3 (n = 332) evaluated the final 10-item measure in a cross-validation sample, and Study 4 (n = 319) determined validity coefficients for the CAMM using bivariate and partial correlations with relevant variables. Results suggest that the CAMM is a developmentally appropriate measure with adequate internal consistency. As expected, CAMM scores were positively correlated with quality of life, academic competence, and social skills and negatively correlated with somatic complaints, internalizing symptoms, and externalizing behavior problems. Correlations were reduced but generally still significant after controlling for the effects of 2 overlapping processes (thought suppression and psychological inflexibility). Overall, results suggest that the CAMM may be a useful measure of mindfulness skills for school-aged children and adolescents.

Mindful Attention Awareness Scale-Adolescent (MAAS-A)

Brown, K.W., West, A.M., Loverich, T.M., & Biegel, G.M. (2011). Assessing adolescent mindfulness: Validation of an adapted mindful attention awareness scale in adolescent normative and psychiatric populations. Psychological Assessment, 23(4), 1023-1033.

Abstract
Interest in mindfulness-based interventions for children and adolescents is burgeoning, bringing with it the need for validated instruments to assess mindfulness in youths. The present studies were designed to validate among adolescents a measure of mindfulness previously validated for adults (e.g., Brown & Ryan, 2003), which we herein call the Mindful Attention Awareness Scale-Adolescent (MAAS-A). In 2 large samples of healthy 14- to 18-year-olds (N = 595), Study 1 supported a single-factor MAAS-A structure, along with acceptably high internal consistency, test-retest reliability, and both concurrent and incremental validity. In Study 2, with a sample of 102 psychiatric outpatient adolescents age 14-18 years, participants randomized to a mindfulness-based stress reduction intervention showed significant increases in MAAS-A scores from baseline to 3-month follow-up, relative to nonsignificant score changes among treatment-as-usual participants. Increases in MAAS-A scores among mindfulness-based stress reduction participants were significantly related to beneficial changes in numerous mental health indicators. The findings support the reliability and validity of the MAAS-A in normative and mixed psychiatric adolescent populations and suggest that the MAAS-A has utility in mindfulness intervention research.

Measurements for Adults

Freiburg Mindfulness Inventory (FMI)

Walach, H., Buchheld, N., Buttenmuller, V., Kleinknecht, N., & Schmidt, S. (2006). Measuring mindfulness: The freiburg mindfulness inventory (FMI). *Personality and Individual Differences, 40*(8), 1543–1555.

Abstract
Mindfulness, a concept originally derived from Buddhist psychology, is essential for some well-known clinical interventions. Therefore an instrument for measuring mindfulness is useful. We report here on two studies constructing and validating the Freiburg Mindfulness Inventory (FMI) including a short form. A preliminary questionnaire was constructed through expert interviews and extensive literature analysis and tested in 115 subjects attending mindfulness meditation retreats. This psychometrically sound 30-item scale= with an internal consistency of Cronbach alpha = .93 was able to significantly demonstrate the increase in mindfulness after the retreat and to discriminate between experienced and novice meditators. In a second study we broadened the scope of the concept to 86 subjects without meditation experience,117 subjects with clinical problems, and 54 participants from retreats. Reducing the scale to a short form with 14 items resulted in a semantically robust and psychometrically stable (alpha = .86) form. Correlation with other relevant constructs (self-awareness, dissociation, global severity index, meditation experience in years) was significant in the medium to low range of correlations and lends construct validity to the scale. Principal Component Analysis suggests one common factor. This short scale is sensitive to change and can be used also with subjects without previous meditation experience.

Kentucky Inventory of Mindfulness Skills (KIMS)

Baer, R. A., Smith, G. T., & Allen, K. B. (2004). Assessment of mindfulness by self-report: The Kentucky inventory of mindfulness skills. *Assessment, 11*(3), 191–206.

Abstract
A self-report inventory for the assessment of mindfulness skills was developed, and its psychometric characteristics and relationships with other constructs were examined. Participants included three samples of undergraduate students and a sample of outpatients with borderline personality disorder Based on discussions of mindfulness in the current literature, four mindfulness skills were specified: observing, describing, acting with awareness, and accepting without judgment. Scales designed to measure each skill were developed and evaluated. Results showed good internal consistency and test-retest reliability and a clear factor structure. Most expected relationships with other constructs were significant. Findings suggest that mindfulness skills are differentially related to aspects of personality and mental health, including neuroticism, psychological symptoms, emotional intelligence, alexithymia, experiential avoidance, dissociation, and absorption.

Mindful Attention Awareness Scale (MAAS)

Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: Mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology, 84*(4), 822–848.

Abstract
Mindfulness is an attribute of consciousness long believed to promote well-being. This research provides a theoretical and empirical examination of the role of mindfulness in psychological well-being. The development and

psychometric properties of the dispositional Mindful Attention Awareness Scale (MAAS) are described. Correlational, quasi-experimental, and laboratory studies then show that the MAAS measures a unique quality of consciousness that is related to a variety of well-being constructs, that differentiates mindfulness practitioners from others, and that is associated with enhanced self-awareness. An experience-sampling study shows that both dispositional and state mindfulness predict self-regulated behavior and positive emotional states. Finally, a clinical intervention study with cancer patients demonstrates that increases in mindfulness over time relate to declines in mood disturbance and stress.

The Cognitive and Affective Mindfulness Scale – Revised (CAMS-R)

Feldman, G., Hayes, A., Kumar, S., Greeson, J., & Laurenceau, J. (2007). Mindfulness and emotion regulation: The development and initial validation of the cognitive and affective mindfulness scale-revised (CAMS-R). *Journal of Psychopathology and Behavioral Assessment, 29*(3), 177–190.

Abstract

As interest grows in mindfulness training as a psychosocial intervention, it is increasingly important to quantify this construct to facilitate empirical investigation. The goal of the present studies was to develop a brief self-report measure of mindfulness with items that cover the breadth of the construct and that are written in everyday language. The resulting 12-item measure demonstrated acceptable internal consistency and evidence of convergent and discriminant validity with concurrent measures of mindfulness, distress, well-being, emotion-regulation, and problem-solving approaches in three samples of university students. To address potential construct contamination in two items, data are also presented on an alternate 10-item version of the measure.

The Five Facet Mindfulness Questionnaire (FFMQ)

Baer, R. A., Smith, G. T., Hopkins, J., Krietemeyer, J., & Toney, L. (2006). Using self-report assessment methods to explore facets of mindfulness. *Assessment, 13*(1), 27–45.

Abstract

The authors examine the facet structure of mindfulness using five recently developed mindfulness questionnaires. Two large samples of undergraduate students completed mindfulness questionnaires and measures of other constructs. Psychometric properties of the mindfulness questionnaires were examined, including internal consistency and convergent and discriminant relationships with other variables. Factor analyses of the combined pool of items from the mindfulness questionnaires suggested that collectively they contain five clear, interpretable facets of mindfulness. Hierarchical confirmatory factor analyses suggested that at least four of the identified factors are components of an overall mindfulness construct and that the factor structure of mindfulness may vary with meditation experience. Mindfulness facets were shown to be differentially correlated in expected ways with several other constructs and to have incremental validity in the prediction of psychological symptoms. Findings suggest that conceptualizing mindfulness as a multifaceted construct is helpful in understanding its components and its relationships with other variables.

The Philadelphia Mindfulness Scale

Cardaciotto, L., Herbert, J. D., Forman, E. M., Moitra, E., & Farrow, V. (2008). The assessment of present-moment awareness and acceptance: The Philadelphia mindfulness scale. *Assessment, 15*(2), 204–223.

Abstract

The purpose of this project was to develop a bidimensional measure of mindfulness to assess its two key components: present-moment awareness and acceptance. The development and psychometric validation of the Philadelphia Mindfulness Scale is described, and data are reported from expert raters, two nonclinical samples (n = 204 and 559), and three clinical samples including mixed psychiatric outpatients (n = 52), eating disorder inpatients (n = 30), and student counseling center outpatients (n = 78). Exploratory and confirmatory factor analyses support a two-factor solution, corresponding to the two constituent components of the construct. Good internal consistency was demonstrated, and relationships with other constructs were largely as expected. As predicted, significant differences were found between the nonclinical and clinical samples in levels of awareness and acceptance. The awareness and acceptance subscales were not correlated, suggesting that these two constructs can be examined independently. Potential theoretical and applied uses of the measure are discussed.

The Southampton Mindfulness Questionnaire

Chadwick, P., Hember, M., Symes, J., Peters, E., Kuipers, E., & Dagnan, D. (2008). Responding mindfully to unpleasant thoughts and images: Reliability and validity of the southampton mindfulness questionnaire (SMQ). *British Journal of Clinical Psychology, 47*(4), 451–455.

Abstract

Objective: To assess the reliability and validity of the Southampton mindfulness questionnaire (SMQ), a 16-item measure of mindful awareness of distressing thoughts and images.
Methods: A total of 256 people participated, comprising a non-clinical community sample of 134 (83 meditators and 51 non-meditators) and a clinical sample of 122 people with a current distressing psychosis. To assess concurrent validity, non-clinical participants and half clinical participants (total 197 participants) completed the mindful attention awareness scale (MAAS). Predicted links were assessed with affect, and 59 patients completed a validated measure to assess link between mindfulness and intensity of 'delusional' experience.
Results: The scale has a single factor structure, was internally reliable, significantly correlated with the MAAS, showed expected associations with affect, and distinguished among meditators, non-meditators and people with psychosis.
Conclusions: The data support use of the SMQ in clinical practice and research to assess mindful responding to distressing thoughts and images.

The Toronto Mindfulness Scale (TMS)

Lau, M. A., Bishop, S. R., Segal, Z. V., Buis, T., Anderson, N. D., Carlson, L., et al. (2006). The Toronto mindfulness scale. *Journal of Clinical Psychology, 62* (12), 1445–1467.

Abstract
In this study, the authors both developed and validated a self-report mindfulness measure, the Toronto Mindfulness Scale **(**TMS). In Study 1, participants were individuals with and without meditation experience. Results showed good internal consistency and two factors, Curiosity and Decentering. Most of the expected relationships with other constructs were as expected. The TMS scores increased with increasing mindfulness meditation experience. In Study 2, criterion and incremental validity of the TMS were investigated on a group of individuals participating in 8-week mindfulness-based stress reduction programs. Results showed that TMS scores increased following treatment, and Decentering scores predicted improvements in clinical outcome. Thus, the TMS is a promising measure of the mindfulness state with good psychometric properties and predictive of treatment outcome.

VII. Mindfulness in Schools: Additional Literature Reviews and Summaries

Below is a collection of additional peer reviewed literature reviews on the potential benefits of incorporating mindfulness practice in schools.

Weare, K. (2013). Developing mindfulness with children and young people: A review of the evidence and policy context. *Journal of Children's Services, 8* (2) 1-30.

Abstract

Purpose: This paper explores the growing field of the teaching of mindfulness to young people, looking at its social and policy context, its applications, and other areas of work which it might support and within which it might fit. It focuses particularly on the state of the current evidence for such teaching and the conclusions that can be drawn from it.

Design/methodology/approach: The paper is a literature review, drawing mainly on the twenty or so significant and good quality studies (i.e. those with significant numbers of participants, published in peer reviewed journals) that make up the evidence base for mindfulness and the young, plus some comments on the policy context into which mindfulness can and might fit.

Findings: Work on mindfulness with young people is popular with both staff and students, has a developing presence and can be effective in promoting a very wide range of outcomes. When well taught and when practiced regularly it has been shown to be capable of improving mental health and well being, mood, self-esteem, self-regulation, positive behavior and academic learning. There are many possible promising locations for mindfulness within mainstream education and the health services, including work to improve on mental health and well-being for staff and students, social and emotional learning, special education and mainstream subject based work.

Research limitations/implications: This is a rapidly growing and promising field that deserves serious attention to widen and deepen the growing evidence base for the much needed benefits for the young that mindfulness appears to bring. It is a young field and most existing studies have been pilots with small numbers, little use of control groups or 3 random allocation, as yet no standardized measures, a good deal of reliance on self-report, and often biases created by having participants who volunteer rather than being chosen. There is an urgent need for more robust studies to support the exponential growth in practice.

Practical implications: The evidence base reviewed in this paper suggests that for schools and the health service to engage in mindfulness is likely to be highly acceptable to staff and students and likely to show beneficial results, while being relatively cheap to introduce, with sustained benefits and likely to have an impact fairly quickly.

Social implications: Mindfulness links with concerns to reduce the burden of health spending on physical and mental illness, including stress and chronic conditions, through preventive, low cost, population based interventions, including in schools. It links with work on positive health and positive psychology, with a growing interest eastern 'holistic' ways of thinking and contemplative approaches such as meditation and yoga, and with the growth of work on social and emotional learning.

Originality/value: Work with adults is well developed with a convincing evidence base, but work with the youth, although developing rapidly, is much newer and this review is one of only a handful attempting to bring it to wider professional awareness.

Meiklejohn, J., Phillips, C. M.,Freedman, L., Griffin, M., Biegel, G., Roach, A., Frank, J., Burke, C., Pinger, L., & Soloway, G., Isberg, R., Sibinga, E., Grossman, L., & Saltzman, A. (2012). Integrating mindfulness training into K-12 education: Fostering the resilience of teachers and students. *Mindfulness, 1* (1).

Abstract

Over the past decade, training in mindfulness—the intentional cultivation of moment-by-moment non-judgmental focused attention and awareness—has spread from its initial western applications in medicine to other fields, including education. This paper reviews research and curricula pertaining to the integration of mindfulness training into K-12 education, both indirectly by training teachers and through direct teaching of students. Research on the neurobiology of mindfulness in adults suggests that sustained mindfulness practice can enhance attentional and emotional self-regulation and promote flexibility, pointing toward significant potential benefits for both teachers and students. Early research results on three illustrative mindfulness-based teacher training initiatives suggest that personal training in mindfulness skills can increase teachers' sense of well-being and teaching self-efficacy, as well as their ability to manage classroom behavior and establish and maintain supportive relationships with students. Since 2005, 14 studies of programs that directly train students in mindfulness have collectively demonstrated a range of cognitive, social, and psychological benefits to both elementary (six studies) and high school (eight studies)

students. These include improvements in working memory, attention, academic skills, social skills, emotional regulation, and self-esteem, as well as self-reported improvements in mood and decreases in anxiety, stress, and fatigue. The educational goals, target population, and core features of ten established mindfulness-based curricula are described. Finally, the need for more rigorous scientific evidence of the benefits of mindfulness-based interventions in K-12 education is discussed, along with suggestions of specific process, outcome, and research-design questions remaining to be answered.

Mental Health Foundation (2011). Mindfulness in Education: Evidence base and implications for Aotearoa/New Zealand. Auckland: Mental Health Foundation.

Introduction

Since childhood stress is a precursor for adulthood stress and stressful life events have been shown to be related to reduced academic performance (Kiselica, Baker, Thomas, & Reedy, 1994; cited in Napoli, Krech, & Holley, 2005), it is important that children and young people are taught effective strategies for stress reduction. Research indicates that stress reduction programmes in schools lead to improvements in academic performance, self-esteem, mood, concentration and behavioural problems (Ballinger & Heine, 1991; Dendato & Deiner, 1986; Kiselica, Baker, Thomas, & Reedy, 1994; Napoli, 2002; Shillingford & Shillingford-Mackin, 1991; all cited in Napoli et al., 2005). To date, the majority of research into the benefits of mindfulness practices has been conducted with adult populations. However, there is a growing body of research exploring the effects of mindfulness on the general wellbeing and academic performance of children and adolescents.

Lillard, A.S. (2011). Mindfulness practices in education: Montessori's approach. *Mindfulness, 2,* 78-85.

Abstract

Mindfulness training has had salutary effects with adult populations and it is seen as a potentially helpful to children's development. How to implement mindfulness practices with young children is not yet clear; some meditation practices, like sitting still for long periods with internally-self-regulated focused attention, seem developmentally inappropriate. Montessori schooling is a 100-year-old system that naturally incorporates practices that align with mindfulness and are suited to very young children. Here I describe how several aspects of Montessori education, including privileging concentrated attention, attending to sensory experience, and engaging in practical work, parallel mindfulness practices. These aspects might be responsible for some of the socio-emotional and executive function benefits that have been associated with Montessori education, and they could be adapted to conventional classroom methods.

Saltzman, A., & Goldin, P. (2008). Mindfulness-based stress reduction for school-age children. In L. Greco & S. Hayes (Eds), *Acceptance and Mindfulness Treatments for Children & Adolescents: A practitioner's guide* (pp. 139–161). Oakland, CA: New Harbinger Publications.

Abstract

Interest in applications of mindfulness-based approaches with adults has grown rapidly in recent times, and there is an expanding research base that suggests these are efficacious approaches to promoting psychological health and well-being. Interest has spread to applications of mindfulness-based approaches with children and adolescents, yet the research is still in its infancy. I aim to provide a preliminary review of the current research base of mindfulness-based approaches with children and adolescents, focusing on MBSR/MBCT models, which place the regular practice of mindfulness meditation at the core of the intervention. Overall, the current research base provides support for the feasibility of mindfulness-based interventions with children and adolescents, however there is no generalized empirical evidence of the efficacy of these interventions. For the field to advance, I suggest that research needs to shift away from feasibility studies towards large, well-designed studies with robust methodologies, and adopt standardized formats for interventions, allowing for replication and comparison studies, to develop a firm research evidence base.

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IX. Appendices

A. Mindfulness-based Programs for School Staff and Students
B. Teaching References for the Educator

Appendix A: Mindfulness-based Programs for Staff and Students

Care for Teachers: A Program of the Garrisons Institute's Contemplative Teaching and Learning Initiative

The CARE Retreat. Retrieved August 22, 2013, from http://www.care4teachers.org/the-care-retreat/

The Garrison Institute's Contemplative Teaching and Learning Initiative (CTL) offers this innovative training for teachers introducing an evidence-based set of practical skills. These skills will help you reduce stress, improve your mental concentration and emotional awareness and facilitate responsiveness. You will be able to apply these in the classroom so you can consistently be the caring, compassionate teacher you are. These skills include relaxation, movement, deep listening, emotion-awareness training, and much more.

Mindful Schools: Integrating Mindfulness into Education

Bring Mindfulness to Your School. Retrieved on August 22, 2013, from http://www.mindfulschools.org/schools/our-programs/

Mindful Schools offers a two-step approach to getting Mindfulness into schools.
Step 1: Learn Mindfulness: School Staff takes Mindfulness Fundamentals (6-Week Online Course)

- Embodying mindfulness is critical for teaching it effectively
- Help staff with their own self-care
- Reduce stress, increase patience and coping skills
- Cultivate empathy and strengthen relationships

Step 2: Learn How to Teach Mindfulness to Children: School staff takes a Curriculum Training (16-Hour Online Course):

- Learn proven techniques used with over 30,000 students to improve behavior
- Instructors with extensive experience teaching mindfulness in classrooms
- Demonstrations and practice teaching mindfulness
- A plan for integrating mindfulness to help with classroom management

Resilient Mindful Learner Project

http://www.ocde.us/HealthyMinds/Pages/Resilient-Mindful-Learner-Pilot-Project.aspx

Unrelenting stress debilitates both students and educators. For students, stress impacts their ability to focus, remember, pay attention, and manage their behavior, thus jeopardizing their academic, social and emotional development. For school staff, meeting the academic, social and emotional needs of students can take their toll making burnout and emotional fatigue a present reality. The Resilient Mindful Learner (RML) approach trains teachers in stress management and mindfulness practices followed by training in how to integrate stress reduction and mindful awareness practices into daily classroom management routines. RML provides a toolkit of exercises that can be used to customize the teaching of these skills to students.

Participants will learn to:
1. Increase their mind-body wellness and their ability to prevent and manage their professional and personal stress.
2. Teach students stress management, mindful awareness and emotional self-regulation skills.

3. Integrate stress reduction into classroom management routines.
4. Develop a school and classroom climate that helps students & staff flourish.
A nine-to-twelve hour training can be delivered in a customized format. Group coaching for implementation is also available and recommended.

Stressed Teens Trainings

Retrieved August 22, 2013, from http://www.stressedteens.com/trainings/

Stressed Teens is a Mindfulness-Based Stress Reduction for Teens (MBSR-T) program. The MBSR-T intervention is closely related to the traditional MBSR program created by Kabat-Zinn and colleagues. The MBSR-T program is meant to be a program to use with adolescents vs. the traditional MBSR program for adults. This program can be adapted from the group format to accommodate other settings (e.g., schools, individual/family therapy) and for a variety of populations (e.g., clinical and non-clinical). The formal practices are shorter in duration to accommodate the attention span of adolescents. MBSR-T seeks to meet teens where they are developmentally and use language, references and stories that are relevant to them. Emphasis is also given to mindful qualities of living, informal practice and developing an awareness of one's thoughts. It appears, through experience in this program, teens often benefit from activities that focus on noticing and awareness of self-other judgments, worries, things out of one's control, and pain and suffering. Many mental health difficulties arise from these aforementioned thoughts.

Susan Kaiser Greenland: Inner Kids Program

Inner Kids Professional Training for the 2013-14 School Year: Inner Kids Professional Training. Retrieved August 22, 2013, from http://www.susankaisergreenland.com/content/inner-kids-level-1-training-for-the-2013-14-school-year.html

The Inner Kids Program teaches age-appropriate activities for children and teens that can be easily integrated into your routine at home, in the classroom, after-school, or in clinical practice. Inner Kids first level of training consists of two residential, weekend retreats between which there will be self-paced online presentations and training modules.

The MindUp Training & Adult Learning Forums, The Hawn Foundation

Retrieved on August 22, 2013 from http://thehawnfoundation.org/mindup/mindup-training-forums/

In 15 comprehensive lessons, our curriculum scaffolds core academic programs, delivering a set of social, emotional and self-regulatory strategies and skills, developed for pre-K through middle school students. The Hawn Foundation offers a blended learning approach, providing both on-site "live" training and an online support system to insure sustainability and mastery of skills. Customized Training Programs and Workshops are available for educators, community members and parents.

The Mindfulness in Schools Project. *The .b Courses*

Retrieved on August 22, 2013, from http://mindfulnessinschools.org/courses/

The **.b** courses offer a way in to mindfulness that is fun, accessible and of genuine use in daily life. Based on the core mindfulness principles of Mindfulness-Based Stress Reduction (MBSR) and Mindfulness-Based Cognitive Therapy (MBCT), the **.b** courses offer customized content and learning through our roles in the school community — as teachers, staff, parents, and students.

Appendix B: References for the Educator

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www.ocde.us/healthyminds