

The Efficacy of Mindfulness-Based Interventions on Occupational Stress and Burnout among K-12 Educators: A Review of the Literature

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Abstract.

This paper presents a review of the literature on the efficacy of mindfulness-based interventions for reducing occupational stress and burnout among K-12 educators. An in-depth discussion of the incidence and impact of teacher stress and burnout is provided, as a wealth of literature indicates that this issue is of growing concern and has important implications not only for individual educators, but also for students and the school as an organization. Given the evidence of a link between teacher wellbeing and student outcomes, this topic is worth further investigation in order to better understand sources of stress and burnout, and propose adequate coping strategies, for today's educators. As a potential solution to teacher stress and burnout, mindfulness-based interventions are reviewed in-depth, and an overview of the history, diverse application, and effects of mindfulness practice are provided. Relevant outcomes of educator mindfulness training presented in the literature include increased emotional regulation, self-efficacy, and personal wellbeing, among several others. Lastly, additional implications and benefits of educator mindfulness training are explored, limitations of the current research are reviewed, and apparent best practices are proposed.

Keywords: Educator burnout, emotional regulation, mindfulness, self-efficacy, stress-reduction

1. Introduction

Over the past few decades, the issues of occupational stress and burnout have become increasingly prevalent among teachers in primary and secondary education. According to a 2013 MetLife survey, around 51% of US educators report experiencing extreme stress several days per week, and almost 40% leave the teaching profession within the first five years (Ingersoll, 2002). High levels of stress present both personal and professional challenges for educators, including high psychological distress (Montgomery & Rupp, 2005), impaired physical and emotional wellbeing (Clunies-Ross, Little, & Keinhuis, 2008), and reduced job satisfaction, effectiveness, and overall teaching quality (Abel & Sewell, 1999). Stress within teaching also affects the entire school as an organization (Clunies-Ross, et al., 2008).

Compared to individuals in other professions, teachers report above-average levels of physical and mental health problems, and below-average levels of job satisfaction (Herman, Hickmon-Rosa, & Reinke, 2018). According to the literature, American teachers are currently experiencing more job-related stress than previous generations due to the growing diversity of student populations, as well as declining parental responsibility and involvement (Aloe, Amo, & Shanahan, 2014). The sources of teacher stress are fairly extensive and are discussed at length in the body of this paper.

Prolonged occupational stress among human service professionals is associated with burnout, an experience characterized by a gradual loss of “idealism, energy, purpose, and concern” caused by work conditions (Farber, 1984). Burnout is assumed to be one contributing factor in the increasing number of capable teachers that leave the profession in search of alternative career opportunities (Russell, Altmaier, & Van Velzen, 1987). Burnout has also been associated with a wide range of negative outcomes on teachers’ mental, physical, and emotional health, as well as on aspects of job performance, teacher-student relationships, and the classroom environment (Farber, 1984).

Given the high incidence of job-related stress among teachers, which is a key factor in the etiology of burnout syndrome, there is an apparent need for interventions that offer educators practical coping strategies to target sources of stress and effectively reduce burnout (Abel & Sewell, 1999). As the mounting concern of teacher stress and burnout has been brought to the fore, a number of studies have emerged to investigate potential stress-reduction interventions for this population. Specifically, a considerable amount of research has been conducted on various mindfulness-based interventions for teachers, since mindfulness has been linked with positive outcomes that may be particularly relevant for teachers, such as reduced stress (Chiesa & Serretti, 2009) and increased emotion regulation, empathy, and compassion (Davis & Hayes, 2011). Therefore, the current paper will review the literature to evaluate the efficacy of mindfulness-based interventions on reducing occupational stress and burnout among K-12 educators.

2. Review of Literature

Educator Stress and Burnout: Definition and Prevalence

Although the terms stress and burnout are frequently referenced in conjunction when discussing occupational health concerns, it is important to distinguish that while these conditions often co-occur, they are not synonymous (Farber, 1984). The literature defines teacher stress specifically as “a negative emotional experience that is triggered by teachers’ perception of an external situation as threat to their self-esteem or wellbeing” (Kyriacou, 2001). Additionally, teachers’ experience of stress seemingly results from their perceptions of demands, coupled with an inability or difficulty in meeting those demands due to a lack of effective coping resources (Abel & Sewell, 1999).

This conceptualization relates to Lazarus’ transactional model of stress (1966), which posits that stress depends on one’s cognitive appraisal of events and circumstances, and on the ability to cope.

Burnout, on the other hand, is a state of chronic exhaustion resulting from long-term interpersonal stress and repeated exposure to emotionally charged social situations in

2nd World Conference on Teaching and Education

19-21 February, 2021

Vienna, AUSTRIA



one's job (Schwarzer & Hallum, 2008). Burnout is the product of unmediated occupational stress (Farber, 1984) and is frequently experienced by individuals in the human service professions who deal extensively with the needs of others (Howard & Johnson, 2004). As burnout is precipitated by stress, it is necessary to first discuss the scope and various causes of educator stress.

Stress

As previously mentioned stress is highly prevalent among educators, with 51% of teachers surveyed in 2013 reporting frequent elevated levels of stress. This issue appears to be of growing concern, as a recent empirical research reported that 93% of teachers in the study were characterized by high stress (Herman, et al., 2018). It is also worth noting that, in a database of 26 occupations, teaching was rated as one of the highest in stress-related outcomes, which was explained primarily by teachers' frequent emotional involvement with their students (Split, Koomen, & Thijs, 2011).

While these findings do not describe the entire teaching population, they do emphasize the increasing frequency of this phenomenon and highlight the need for sources of educator stress to be understood, and for adequate coping resources to be provided. A study investigating the sources and extent of satisfaction, stress, and burnout among 365 suburban K-12 educators in New York identified unsuccessful administrative meetings, excessive paperwork, and lack of advancement opportunities as the most frequent sources of stress for this population (Farber, 1984). On the other hand, frequent sources of satisfaction among teachers included experiences that promoted a sense of competence, importance, and commitment to their work, and feeling sensitive to and involved with students (Farber, 1984). Understanding sources of satisfaction for teachers may be useful in informing potential interventions or coping strategies.

Another study of 51 rural and 46 urban secondary school teachers across 11 schools in Georgia and North Carolina found the primary sources of stress to be pupil misbehavior, poor working conditions, time pressures, and poor staff relations (Abel & Sewell, 1999). In the context of this research, the term 'poor working conditions' covers a broad range of situational factors such as inadequate salary, limited promotion opportunities, minimal recognition, and lack of satisfactory equipment and resources. The authors specifically highlighted the importance of teacher-student relationships, citing several studies that found disruptive student behavior to be a consistent predictor of teacher stress. As a notable distinction, the research by Split and colleagues (2011) specified that it is not student misbehavior in general, but rather the extent to which such behavior undermines the teacher-student relationship, that may cause prolonged teacher distress.

Particularly, Abel and Sewell noted differences in stress between teachers in urban and rural environments, with urban teachers reporting more stress due to poor working conditions and poor staff relations than rural teachers (1999). However, student misbehavior and time pressures were greater sources of stress than poor working conditions and staff relations for both populations. These findings indicate that while teachers may generally experience similar sources of stress, it is important to consider that individual differences may exist based on school environment (i.e. urban or rural), grade level taught,

or other factors. For example, Farber suggested that working in junior high or middle schools may be particularly stressful (1984).

While the previously mentioned studies focused on teachers in the United States, the abundance of literature on teacher stress and burnout published across a wide range of developed countries indicates that this issue should be considered on an international scale (Howard & Johnson, 2004). A summary of these various studies identified the ten main stressors for teachers internationally as: teaching unmotivated students, maintaining discipline, time pressures and workload, coping with change, being evaluated, colleague interactions, concerns about self-esteem and status, problems with administration, role conflict and ambiguity, and poor working conditions (Kyriacou, 2001).

Clearly, there are a host of factors that contribute to the incidence of occupational stress among teachers both in the United States and internationally. As there are so many possible stressors that each individual teacher may face, interventions that aim at enhancing emotional responses and coping strategies, rather than eliminating the external sources of stress, may be more realistic to implement and may have a broader reach. Loonstra, Brouwers, and Tomic (2009) suggest that intervention programs focusing on aspects of teachers' personalities are more likely to be effective than those targeting environmental conditions, since personality factors are more easily altered than organizational factors. Additionally, Montgomery and Rupp's correlational meta-analysis of 65 published studies on teacher stress (2005) indicated that high teacher stress is associated with psychological distress, and that this relationship may be mediated through coping mechanisms and personality traits. Furthermore, the authors identified individual differences in emotion regulation skills as an important factor in understanding teacher stress.

This is related to Lazarus' transformational model of stress (1996), which suggests that the experience of stress depends on one's appraisal of the event and ability to cope, rather than the stressful event itself. However, this framework is not intended to suggest that stress is the responsibility of the individual teacher to cope with alone, nor that the inability to cope is an individual deficit (Howard & Johnson, 2004). Rather, this calls attention to the need for institutional support in equipping educators with effective coping skills, especially since stress-induced burnout has been found to particularly effect individuals who lack appropriate coping resources (Schwarzer & Hallum, 2008).

Burnout

Exposure to prolonged periods of stress without having an "out," a support system, rewards (Farber, 1984), or effective coping resources commonly leads to the experience of burnout among educators. The concept of occupational burnout originated in the 1970's with the works of Freudenberger (1974, 1975) and Maslach (1976), and has been observed in many human service professions within the fields of medicine, criminal justice, social work, and education (Aloe, et al., 2014).

Maslach's widely used conceptualization of occupational burnout includes three dimensions: emotional exhaustion, depersonalization, and reduced personal accomplishment (Schwarzer & Hallum, 2008). These three dimensions are measured using the Maslach Burnout Inventory (MBI; Maslach, Jackson, & Leiter, 1996), a questionnaire designed specifically for educators to assess the frequency and scope of burnout symptoms

2nd World Conference on Teaching and Education

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(Abel & Sewell, 1999). Emotional exhaustion is defined as being emotionally overextended and depleted of emotional resources, and symptoms include fatigue, debilitation, and loss of energy. Depersonalization is characterized by cynicism, irritability, loss of idealism, and negative or detached attitudes. Lastly, reduced personal accomplishment is experienced as a decline in feelings of competence and achievement at work, reduced professional efficacy, productivity, or capability, low morale, and an inability to cope with demands (Schwarzer & Hallum, 2008). Notably, teachers tend to have a lower sense of personal accomplishment and slightly higher scores of emotional exhaustion and depersonalization relative to human service professionals in other fields (Aloe, et al., 2014).

As previously discussed, it is necessary to distinguish that stress and burnout are separate conditions and do not always co-occur. Therefore, as educator stress becomes increasingly prevalent, it is important to understand which individual or situational factors may either contribute to, or protect against, the incidence of burnout. A number of empirical studies have sought to identify which characteristics are associated with higher levels of burnout among teachers. For example, Aloe and colleagues (2014) discussed that burnout is higher among secondary school teachers in both urban and suburban areas, as well as among those who are young and unmarried.

Russell and colleagues (1987) claimed that teacher age, sex, and grade level are apparently significant predictors of MBI scores. Specifically, younger teachers were found to experience more emotional exhaustion, depersonalization was more prevalent among both male and secondary teachers, and elementary school teachers reported a greater sense of personal accomplishment. Additionally, the authors explored the relationship between teacher social support, stress, and burnout, citing previous studies that indicated that increased social support might prevent teacher burnout.

To investigate the impact of different aspects of social support on teacher burnout, the authors mailed a random sample of Iowa public school teachers a questionnaire measuring job related stress, social support, and burnout. Responses from 316 completed surveys identified that supervisor support, reassurance of worth, and reliable alliances were three aspects of social support that predicted burnout among teachers (Russell et al., 1987). Specifically, these sources of social support were negatively associated with dimensions of burnout, leading the authors to recommend that programs for preventing teacher burnout should include supervisor acknowledgment of teachers' skills and abilities.

Farber's study (1984) found that 20-25% of teachers in the sample were vulnerable to burnout, and that 10-15% were already burned out. A key insight from this research was that there appeared to be individual differences in the experience of burnout based on demographic factors, with junior high school teachers between the ages of 34 and 44 being the most at-risk for burnout. Farber (1984) also discussed previous studies that suggested that individual personality factors may influence the incidence of burnout, claiming that teachers who are "obsessional, passionate, idealistic, and dedicated" may be pre-disposed to experiencing "battered teacher syndrome" (Bloch, 1977). Other literature suggested that burnout is more frequent among workers who are highly motivated, dedicated, and committed, and tend to react to stress by working too intensely (Zhang & Sapp, 2008).

Additionally, research has shown that the probability of burnout is higher when teachers' needs for self-actualization and self-esteem are unfulfilled (Farber, 1984).

Building on this notion that personality factors may affect the incidence of burnout, a few studies have investigated the relationship between teacher self-efficacy and occupational stress and burnout. The concept of self-efficacy is a key component of Bandura's social-cognitive theory (1997), and is defined as personal confidence in one's ability to cope across a wide range of stressful or novel situations (Schwarzer & Hallum, 2008). Schwarzer and Hallum (2008) conducted two studies to examine the mediating role of self-efficacy on decreasing job stress and thus reducing the likelihood of educator burnout. The first study involved a cross-sectional examination of a sample of 1,203 German and Syrian teachers, and the second study consisted of a one-year longitudinal analysis of the 458 German teachers who participated in the first study. Irrespective of cultural considerations among the sample, the first study confirmed that self-efficacy represents a resource factor, and that job stress may mediate the relationship between self-efficacy and burnout. Specifically, low levels of self-efficacy (or a lack of personal resourcefulness) may impact the experience of job-related stress and make teachers more vulnerable for burnout. The second study using the sample of German teachers also found that self-efficacy mediated the effects of job stress on burnout, and this effect was stronger for younger teachers (Schwarzer & Hallum, 2008).

Aloe and colleagues (2014) also investigated the relationship between educator self-efficacy and burnout. The authors looked specifically at teachers' classroom management self-efficacy (CMSE), which they defined as the extent to which a teacher feels capable of maintaining student attention and dealing with disruption and misbehavior. A multivariate meta-analysis of 16 studies was conducted to determine the relationship between CMSE and the three dimensions of burnout. The results found a significant relationship suggesting that teachers high in CMSE are less likely to experience the effects of burnout. The largest effects appeared between CMSE and personal accomplishment, as teachers with a greater sense of CMSE appeared to also feel more accomplished. Additionally, CMSE was negatively related to emotional exhaustion and depersonalization. Based on the findings of this meta-analysis, the authors proposed that teachers with lower self-efficacy may internalize their feelings, resulting in a decreased sense of overall accomplishment and increased disengagement. Furthermore, they suggested that this maladaptive response pattern perhaps explains why teachers eventually leave the profession.

Other personality factors that have been mentioned in the literature on educator burnout include personality traits, constructive thinking, work engagement, and existential fulfillment (Loonstra et al., 2009). Existential fulfillment refers to a sense of meaning and purpose in life, and Loonstra and colleagues (2009) suggested that individuals who feel meaningless, and who fail to believe that the things they do are useful and important, are likely to experience burnout. To empirically investigate if existential fulfillment is a predictor of burnout, the authors administered questionnaires with items based on the Existential Fulfillment Scale (Loonstra et al., 2007) and the MBI to 504 secondary school teachers. Results of the analysis confirmed the authors' three hypotheses: higher levels of

existential fulfillment predicted lower scores on the burnout symptom of mental exhaustion, higher existential fulfillment predicted lower levels of cynicism, and higher existential fulfillment predicted higher professional efficacy. Based on their findings, the authors suggested that mindfulness-based stress reduction (MBSR) could be a possible intervention to prevent burnout, which will later be explored in-depth in this paper.

Educator Stress and Burnout: Impact and Implications

As various sources of educator stress and burnout have been identified and discussed at length, it is important to now review the impact that such conditions have on teachers' personal and professional wellbeing, their students, and the overall classroom environment. In addition to affecting the lives of teachers and their students, the incidence of educator stress and burnout poses a serious concern to the system of education as a whole, with thousands of teachers abandoning the profession as a result of burnout (Farber, 1984). As much literature has been dedicated to exploring this issue, there is considerable evidence suggesting that extensive stress can result in depressed mood, exhaustion, poor performance, or changes in attitude and personality that may lead to illness or premature retirement among educators (Schwarzer & Hallum, 2008). Occupational stress has a negative impact on educators' job satisfaction (Abel & Sewell) and can also lead to turnover, with about half of teachers reportedly leaving the field within the first five years due to stress (Herman et al., 2018).

Burnout may manifest as a variety of physical, psychological, and behavioral symptoms, including headaches, peptic ulcers (Russell et al., 1987), anxiety, fatigue, frustration, depression, hopelessness, and detachment, to name a few (Zhang & Sapp, 2008). Experiencing burnout has been linked with absenteeism, irritability, and poor performance among educators (Herman et al., 2018), and can lead to turnover, emotional and psychosomatic illnesses, and even drug and alcohol abuse (Zhang & Sapp, 2008). Additionally, burnout is negatively associated with measures of teacher wellbeing such as school connection and perceived health (Aloe et al., 2014), and teachers may feel powerless, alienated, isolated, and as if their work is meaningless (Howard & Johnson, 2004).

Not only do stress and burnout result in negative outcomes for teachers' health, wellbeing, and job satisfaction, but these conditions have also been found to impact student learning and the classroom environment. As previously mentioned, many skilled teachers leave the profession or retire prematurely due to stress. However, stressed individuals who continue teaching have been found to be less effective at planning lessons, managing students, and handling parental relationships (Howard & Johnson, 2004). Stress can also impair the teacher-student relationship (Abel & Sewell, 1999), which has been identified as one of the main sources of satisfaction for educators (Farber, 1984), and which has a significant impact on student learning (Split et al., 2011) and motivation (Zhang & Sapp, 2008). Burnout has also been linked with reduced teacher-student rapport and decreased effectiveness in meeting educational goals (Abel & Sewell, 1999). Furthermore, teachers suffering from burnout may have less sympathy for students and a lower tolerance for classroom disruptions (Farber, 1984), and teacher difficulties with classroom management

has been identified as a significant factor in student disengagement (Clunies-Ross et al., 2008).

Given that teachers are often influential figures in children's lives, evidence suggests that teacher wellbeing may have indirect, yet significant effects on students' academic performance and socio-emotional adjustment. Teachers are also greatly impacted by their students, with positive student relationships providing teachers with internal rewards, giving meaning to their work, and even encouraging them to stay in the profession. As teachers' personal and professional identities are seemingly linked with their relationship with students, it has been suggested that there is a need for teachers to invest in their "selves" (Split et al., 2011). In other words, teachers who take time to work on their own wellbeing will be able to better relate with and more effectively serve their students.

The previously discussed concept of self-efficacy has also been found to impact the teacher-student relationship. Herman and colleagues (2018) discussed how teachers low in self-efficacy who harbor negative beliefs about their abilities to teach students and manage classroom behavior demonstrate less effective teaching practices, which leads to lower student achievement. On the other hand, teachers who feel more capable managing classroom behaviors are more likely to perform effective practices and produce positive student outcomes. Furthermore, students' positive responses to effective classroom management create a positive feedback loop, whereby teachers experience increased self-efficacy and are more likely to perform effective teaching practices in the future (Herman et al., 2018).

Herman and colleagues' study (2018) of 121 teachers and 1817 students in grades K-4 across nine urban elementary schools identified four distinct profiles of teacher adjustment: stressed/low coping, stressed/moderate coping, stressed/high coping, and well-adjusted. 93% of teachers in the sample were in profiles characterized by high stress, while only 7% were considered well adjusted. The stressed/low coping teacher profile was linked with the worst student outcomes in the study, such as lower math achievement and adaptive behaviors and higher disruptive behaviors compared with students in the other teacher profiles (Herman et al., 2018). This study, as well as the previously discussed literature, suggests that teachers' sense of wellbeing and their abilities to cope with occupational stressors have important implications for students and deserve further attention.

Mindfulness: History and Overview

Mindfulness practice dates back thousands of years and is rooted in Buddhist, Hindu, and Zen traditions (Germer, Siegel, & Fulton, 2005). Despite the original religious orientations, Dr. Jon Kabat-Zinn at the University of Massachusetts Medical Center repurposed this ancient practice in the late 20th century as a secular medical intervention. In 1979, Mindfulness Based Stress Reduction (MBSR) was presented as a new treatment designed to help Americans suffering from stress, pain, and illness benefit from the therapeutic qualities of meditation in a secular context (Kabat-Zinn, 2011).

Kabat-Zinn coined the most widely used definition of modern-day mindfulness as "paying attention in a particular way, on purpose, in the present moment, non-judgmentally." Mindfulness has also been characterized in the literature as a

“dispassionate, non-evaluative, and sustained moment-to-moment awareness of perceptible mental states and processes” that includes a constant awareness of “physical sensations, perceptions, affective states, thoughts, and imagery” (Grossman, Niemann, Schmidt, & Walach, 2004). For the purposes of this paper, mindfulness can be simply understood as “moment-to-moment awareness of one’s experience without judgment” (Davis & Hayes, 2011).

Mindfulness practice has gained traction over the past few decades and has come to be recognized as an effective intervention for a broad range of chronic disorders and health issues. A wealth of literature has explored the use of mindfulness interventions among various clinical populations, including psychiatric patients and those diagnosed with illnesses such as fibromyalgia, cancer, coronary artery disease, depression, chronic pain, anxiety, and eating disorders. Additionally, mindfulness has been studied among prison populations, as well as non-clinical groups seeking to cope with daily stresses more effectively (Grossman et al., 2004). Beyond its initial applications in the field of medicine, mindfulness has also spread into various domains such as psychology, healthcare, neuroscience, business, the military, and education (Meiklejohn, et al., 2012).

As the term ‘mindfulness’ is understood as a psychological state of awareness (Davis & Hayes, 2011), the practices that are employed to promote this state are known as mindfulness-based interventions. The most commonly used mindfulness-based intervention is Dr. John Kabat-Zinn’s MBSR, which was originally conceived as an eight-week standardized group meditation program intended to integrate Buddhist mindfulness meditation with contemporary clinical and psychological practices (Chiesa & Serretti, 2009). The experiential course is comprised of weekly sessions approximately 2.5 hours in length, with an additional single all-day session. Each session covers specific practices and topics, and includes an opportunity for individual reflection as well as group discussion about applying mindfulness to stressful situations and interactions in daily life. Additionally, since the efficacy of mindfulness is predicated upon regular and repeated practice, participants are assigned daily homework exercises consisting of 45-minutes of daily practice and reflection (Grossman et al., 2004).

While programs may be tailored to suit the specific needs of the group, MBSR consists of three core practices: body scan, sitting meditation, and hatha yoga. The body scan is an activity that uses breath awareness to gradually sweep one’s attention through the entire body while non-critically noticing any sensations or feelings that may arise. Sitting meditation involves cultivating mindful attention to the breath while bringing a sense of non-judgmental awareness and acceptance to one’s present experience and any cognitions, thoughts, sounds, or sensations. Lastly, hatha yoga combines breathing exercises with gentle movements, simple stretches, and postures intended to strengthen and relax the musculoskeletal system (Chiesa & Serretti, 2009).

Other interventions have been created on the basis of MBSR, including Mindfulness Based Cognitive Therapy (MBCT) for the prevention of depression relapse (Janssen, Heerkens, Kuijer, van der Heijden, & Engles, 2018), as well as specific programs designed for particular cohorts such as mindfulness-based childbirth and parenting, mindfulness-based elder care, mindful leadership, and mindful schools. As mindfulness

practice has grown in popularity numerous studies have been published to investigate its applications and benefits, with mindfulness institutions and associations being established across the globe in countries such as Norway, Sweden, Holland, France, Ireland, Germany, South Africa, Switzerland, and Italy (Cullen, 2011).

Outcomes of Mindfulness-Based Interventions

While the current paper is focused on the efficacy of mindfulness-based interventions for the specific issues of stress and burnout among educators, understanding the overall outcomes and benefits of mindfulness will provide insight into the potential advantages it may offer teachers. A meta-analysis of 20 empirical studies investigating MBSR among both clinical and stressed non-clinical groups (a total of 1605 subjects) found consistent and strong levels of effect sizes across very different types of samples. The authors concluded that these findings indicate that mindfulness training may enhance general features of coping with daily distress and disability, as well as with conditions of serious stress or disorder (Grossman et al., 2004).

Another meta-analysis of 10 studies examined the efficacy of MBSR in healthy subjects, specifically focusing on the benefits of stress reduction (Chiesa & Serretti, 2009). The investigation produced mixed results, finding that MBSR consistently had significant non-specific effects on stress reduction in healthy subjects compared to waitlist controls, yet a direct comparison between MBSR and relaxation training indicated both treatments were equally able to reduce stress. The analysis also found that MBSR was able to reduce ruminative thinking and trait anxiety and to increase empathy and self-compassion, suggesting that MBSR may be linked with nonspecific improvements in psychological symptoms other than stress (Chiesa & Serretti, 2009). It is worth noting that the authors considered the majority of the studies to be of low methodological quality, which highlights the need for improved research design as interest in mindfulness mounts and more studies on the topic emerge.

Davis and Hayes (2011) reviewed the empirically supported intra-personal and inter-personal benefits of mindfulness and identified a broad range of positive outcomes. The benefits of mindfulness that have been found in the literature include self-control, objectivity, affect tolerance, enhanced flexibility, equanimity, improved concentration and mental clarity, emotional intelligence, and the capacity to relate to the self and others with kindness, acceptance, and compassion. Moreover, enhanced wellbeing, emotion regulation, self-insight, morality, empathy, and immune functioning, and reduced psychological distress, reactivity, and rumination are all empirically supported benefits of mindfulness practice (Davis & Hayes, 2011).

This wide range of benefits appears to offer individuals an opportunity to improve many aspects of one's health and wellbeing. The reported outcomes seemingly have the potential to help educators specifically, given their experiences with occupational stress burnout and the unique skill set required to manage a classroom, maintain positive student relationships, and be an overall effective teacher. As put forth by Meiklejohn and colleagues (2012), mindfulness cultivates enhanced resilience and optimal brain function in adults, and offers school systems an innovative and cost-effective approach to train and support their teachers.

Mindfulness-Based Interventions for Educator Stress and Burnout

Mindfulness for educators has been studied for roughly twenty years, with a range of research investigating the efficacy of training among groups of human service professionals, MBSR programs, and standardized interventions designed specifically for teachers. When conducting the search for this literature review, it was encouraging to discover that it was fairly easy to find research examining the benefits of mindfulness for teachers. The literature on this topic is continuing to emerge, and this paper will review fourteen studies that offer insight into the growth and development of mindfulness-based intervention programs for educators over the past decade. It is also worth noting that while some studies discuss the impact of mindfulness on teacher stress and burnout specifically, others explore different factors related with teacher wellbeing that may impact the experience of stress and burnout, such as resilience. The following sub-sections will review existing interventions organized by program type.

MBSR and Mindfulness Training (MT)

A 2010 quasi-experimental study examined the efficacy of a mindfulness training (MT) program to reduce psychological distress among 68 secondary school teachers in Spain (Franco, Manas, Cangas, Moreno & Gallego, 2010). Participants were recruited through a ‘Stress Prevention and Treatment’ course offered to secondary school teachers, with half of the subjects randomly assigned to the experimental group and half to the control. The experimental group participated in a 10-session program that met once a week for 1.5 hours, during which they learned and practiced different forms of meditation, mindfulness and breath awareness, and a body scan. The control group, on the other hand, was assigned to a psychomotor therapy program for the same length of time.

Levels of psychological distress were measured before and after the intervention for both groups using a 90-item self-report questionnaire (SCL-90-R; Derogatis, 2002) that evaluates psychological distress across nine dimensions using a Likert-type scale ranging from 0 (never) to 4 (always). Three indices of distress were created based on these nine dimensions, with Global Severity measuring the amount and intensity of perceived distress symptoms, Total of Positive Symptoms indicating the total number of items marked with some degree of distress, and Positive Symptoms of Distress Index reflecting the symptomatic intensity measured. The pre-test measures revealed no significant differences between the experiment and control group, and it is worth noting that the authors controlled for sex since various studies have apparently found that female teachers are more widely effected by occupational stress than male teachers (Franco et al., 2010).

The results of the authors’ analysis demonstrated a significant reduction of the three general measures of psychological distress, and all of its dimensions, in the experimental group compared to the control. Additionally, follow-up indicated that these results were maintained four months after program completion. The control group did not show significant differences between pre- and post-test measures for any of the variables, confirming the research hypothesis that a significant decrease in distress would be observed in the experimental group compared to the control (Franco et al., 2010).

Another 2010 study evaluated the effects of an eight-week MBSR course on English primary school teachers’ levels of anxiety, depression, and stress. Movement

2nd World Conference on Teaching and Education

19-21 February, 2021

Vienna, AUSTRIA



toward a stated goal and changes in awareness were also measured (Gold, Smith, Hopper, Herne, Tansey, & Hulland, 2010). Program participants consisted of nine teachers and two teaching assistants from six suburban primary schools, all of whom were self-selected and identified themselves as experiencing stress. The program was taught by one of the authors of the study and occurred once a week for 2.5 hours at the end of the school day, with an additional five-hour day of silence taking place between weeks five and six.

The Depression Anxiety Stress Scales (DASS21; Henry & Crawford, 2005) and Kentucky Inventory of Mindfulness Skills (KIMS; Baer, Smith, & Allen, 2004) were administered both before and after the intervention to assess participants' levels of stress and mindfulness. The KIMS evaluates mindfulness on four sub-scales, including Observe, Describe, Act with awareness, and Accept without judgment. Prior to the course, participants also outlined goals that they wished to achieve as a result of the program. Notably, the pre-program DASS results revealed that all of the teachers scored around the clinical threshold for depression, with eight scoring in the clinically significant range on at least two of the three sub-scales.

Following the eight-week intervention, most participants reported reductions in stress, anxiety, and depression as indicated by changes in DASS scores. Specifically, only four teachers scored within the clinically significant range, with two of those feeling just mildly stressed. On average, participants reported they had progressed 60% toward their program goals in less than three months. Interestingly, one participant reported increased levels of stress and anxiety following the intervention, despite finding the course to be helpful and achieving the pre-course goal. This was likely explained by life events outside of the intervention. Overall, the authors found the results to indicate that a range of benefits may occur following educator MT programs, such as enhanced personal wellbeing and ability to cope with teaching demands, achievement of personal goals, and reduced mental health difficulties. However, it is important to mention that this study had many limitations, including a small, self-selected sample, lack of control group, and exclusive use of self-report measures (Gold et al., 2010).

A 2013 study presented the results of two randomized waitlist-control field trials examining the effects of an MT program on teachers' occupational stress and burnout (Roeser et al., 2013). The total sample consisted of 113 elementary and secondary school teachers from Canada and the United States who were randomly assigned to either a treatment or control group following a baseline assessment. The purpose of the study was to evaluate the feasibility and efficacy of a teacher professional development program intended to reduce job stress and symptoms of burnout through MT. Additionally, the program sought to help teachers develop skills and mindsets that are hypothesized to lead to reduced stress, enhanced resilience, and improved teaching and learning within schools.

According to the authors, MT for teachers is hypothesized to have both direct effects on teachers' capacities to teach effectively, and indirect effects on students' abilities to learn more effectively. The authors also posited that teacher stress might have negative indirect effects on student achievement due to teacher absenteeism. Additionally, the theory of change presented in the study is as follows: MT provides teachers with the resources of mindfulness and occupational self-compassion, which will help them cope

more effectively and recover more quickly from the social-emotional and cognitive challenges of the classroom. This will then allow teachers to develop self-regulatory strategies for managing stress and teaching effectively, and modeling these skills and mindsets for students will enable them to be successful in school (Roeser, et al., 2013).

The MT program evaluated in this study was comprised of 11 after-school sessions over the course of eight-weeks, totaling in 36 practice hours. The experiential program taught educators mindfulness and self-compassion through activities such as guided meditations (including focused-attention, open-monitoring, and loving-kindness meditations), body scans, yoga, group mindfulness practices and discussions, lectures, guided home practices, and homework assignments. Specifically, the assigned homework encouraged teachers to apply mindfulness to one aspect of teaching each week, and to document emotional triggers and ways of coping in the classroom for one week in a diary. A battery of self-report measures was administered to measure teachers' mindfulness, focused attention and working memory capacity, occupational self-compassion, occupational stress, occupational burnout, and symptoms of anxiety and depression at baseline, post-program, and at a three-month follow up. Teachers were also asked to self-report any absences due to illness during the school year.

The results of an ANCOVA analysis demonstrated that MT teachers reported higher levels of mindfulness and occupational self-compassion, and significantly lower levels of occupational stress and burnout as compared to the control group at both post-program and the three-month follow-up. Additionally, MT teachers exhibited greater focused attention and working memory than those in the control condition. For the US group only, teachers in the MT program reported significantly fewer symptoms of anxiety and depression at post-program and follow up than did those in the waitlist control. Furthermore, a mediational analysis demonstrated that group differences in mindfulness and self-compassion at post-program mediated reductions of stress, burnout, and symptoms of anxiety and depression at follow-up. The research hypothesis that MT would be linked with a decrease in work absences was not supported.

87% of the MT teachers completed the program and rated it as beneficial, with the majority of participants indicating that they would recommend the program to colleagues and school principals. Based on the overall findings, Roeser and colleagues (2013) suggested that mindfulness helps teachers to develop the self-regulatory resources needed to meet the cognitive, social, and emotional demands of teaching. Given this, the authors posited that mindfulness may also allow teachers to conserve motivational and self-regulatory resources and to invest them into student relationships and teaching, instead of employing them for coping and defense. Therefore, it appears that mindfulness may enable teachers to spend less energy on coping with stressors, and thereby give more attention to teaching and relating positively with students.

Another 2013 paper published the results of a randomized-controlled pilot study evaluating the effects of a modified MBSR program adapted specifically for teachers on stress, burnout, and teaching efficacy (Flook, Goldberg, Pinger, Bonus, & Davidson, 2013). The authors discussed that, at the time, few efforts had been made to boost teachers' wellbeing and address stress and burnout, and that no programs targeting these matters had

been systematically implemented into teachers' professional training. Additionally, the few prior studies that had examined the impact of MT for teachers yielded no consensus on the recommended format for such training, as various approaches differing in breadth, practice type, session length, and overall duration were used. Therefore, Flook and colleagues (2013) sought to investigate the feasibility of an MBSR program specifically adapted for teachers, and to assess which conditions yielded best outcomes.

Study participants consisted of 18 teachers from four low-income, urban schools, ten of whom were randomly assigned to the intervention group and the rest to a control condition. The authors assessed outcomes at both pre- and post-test using a combination of self-report and objective measures, including observation of classroom teaching practices, computerized tasks related to attention and emotion regulation, and saliva sampling for cortisol as a measure of physiological stress. The standard MBSR curriculum (outlined in the previous section) was modified for teachers to incorporate specific school-related activities and practices that could be integrated into the classroom. The eight-week course met once a week for 2.5 hours, and took place during the academic year so that teachers could apply their skills directly to the classroom. The program consisted of an additional six-hour daylong immersion and 15-45 minutes of assigned practice outside of class, totaling in 26 hours of group practice and instruction.

The results of the intervention indicated that mindfulness training adapted specifically for educators may improve aspects of teachers' mindfulness, self-compassion, and effective teaching behavior, and reduce attentional biases and psychological symptoms of burnout. Improvements were observed in both self-report and objective measures, and the post-treatment measure of effect size demonstrated that the intervention group consistently experienced greater gains than the control group. The change in mindfulness levels from pre- to post-test among the intervention group was associated with improvements in burnout, psychological symptoms, and attention. Specifically, a relationship between changes in mindfulness levels and other outcome variables was only observed in the intervention group. Moreover, an increase in self-reported non-reactivity was correlated with a decline in psychological symptoms and depersonalization, and an increase in objective measures of sustained attention (Flook et al., 2013).

Interestingly, not only did the intervention group experience significant improvements compared to controls, but participants in the control group actually demonstrated decreases in cortisol functioning and marginally significant increases in burnout over time. This suggests that teachers who do not receive any resources to cope with stress over the academic year may be likely to experience increased symptoms of physiological stress and a decreased sense of personal accomplishment as the school year carries on. While these results provide important insights into the potential benefits of MT for teachers, as well as the possible repercussions of untreated educator stress, it is important to note that this study had limitations. Namely, the sample size was small, and the authors were only able to measure a single morning sample of cortisol levels, rather than gathering multiple post-waking samples, which may have limited the accuracy of the measure of waking cortisol response. However, strengths of the study included the use of

a control group, comparison of effect sizes, a combination of self-report and objective measures, and an intervention adapted specifically for teachers.

Another study evaluated the protective effects of mindfulness against burnout among educators (Abenavoli, Jennings, Greenberg, Harris, & Katz, 2013). The authors discussed how teachers' social-emotional competence (SEC) may protect them from experiencing burnout and a declining classroom environment, and sought to investigate mindfulness specifically as one aspect of social-emotional competence. Particularly, mindfulness may protect teachers from long-term burnout to the extent that it affects daily emotional and physiological experiences. Abenavoli and colleagues (2013) also argued that mindful educators may be more attentive and responsive to students' needs and the overall classroom dynamic, and may be more aware of student engagement levels and adapt their teaching strategy accordingly. Furthermore, they may also employ greater self-regulation when confronted with misbehavior and opt for more constructive, rather than punitive or reactive, responses.

64 educators from two Pennsylvania middle schools participated in the study and completed self-report measures of mindfulness, burnout, affect, sleep-related impairment, daily physical symptoms, stress, and ambition at the beginning of the academic year. A cross-sectional analysis revealed that educators' mindfulness levels had strong and consistent negative correlations with the three dimensions of burnout, and that this link was partially explained by affect, sleep impairment, and daily physical symptoms. Specifically, individuals who reported higher levels of mindfulness were found to experience less burnout than those who reported lower mindfulness levels. Additionally, the protective effects of mindfulness against dimensions of burnout were greater among teachers who identified as more stressed and ambitious. The authors interpreted these findings to indicate that educator mindfulness has a strong protective effect against burnout, and that mindfulness impacts burnout through a range of daily experiences such as decreased incidences of negative affect, sleep impairment, and physical symptoms (Abenavoli et al., 2013). It is important to distinguish that this study did not include any intervention, and limitations included a small homogenous sample and the exclusive use of self-report measures.

A recent systematic review by Janssen and colleagues (2018) investigated the effects of various MBSR interventions on aspects of employees' mental health across different sectors of the human service industry (healthcare professionals and elementary, secondary, and high school teachers). 22 studies on MBSR and one study of a combined MBSR-MBCT intervention were examined, with the analysis concluding that the strongest reported outcomes were reduced levels of stress, psychological distress, depression, anxiety, occupational stress, and emotional exhaustion (a dimension of burnout). Additionally, improvements were found in levels of mindfulness, occupational self-compassion, sleep quality, relaxation, and personal accomplishment (another dimension of burnout) (Janssen et al., 2018).

These findings suggested that MBSR may improve employees' psychological functioning, however no concrete conclusions could be derived about the effects of specific mindfulness programs for different groups, or under particular conditions. Additionally,

the authors noted that despite the fairly promising outcomes, the small number of available studies and the low methodological quality indicated that research on the effects of mindfulness on employee mental health is still in its infancy (Janssen et al., 2018).

Mindfulness-Based Wellness Education (MBWE)

The Mindfulness-Based Wellness Education (MBWE) program was designed in 2005 in response to the growing number of teachers experiencing stress and burnout, focusing especially on teachers in training. The increasing number of mindfulness-based interventions geared specifically for human service professionals inspired researchers at the Ontario Institute for Studies in Education at the University of Toronto to create a program for education students in the form of an elective course (Meiklejohn, et al., 2012). The team developed the experiential eight-week course based on empirical evidence and modeled it after traditional MBSR, while also focusing on health and wellness promotion (Poulin, Mackenzie, Soloway, & Karayolas, 2008). The main purpose of the intervention was for students to develop foundational mindfulness skills that would then allow them to explore seven key dimensions of wellbeing (physical, social, emotional, ecological, mental, vocational, and spiritual).

A pilot study was launched to examine the impact that MBWE had on teacher trainees as a formal component of their academic training, with the 28 students who selected this course participating in the experimental group and 16 students from other electives volunteering as controls. In addition to attending the course, participants were given a CD and wellness workbook and were instructed to practice outside of class for 15-20 minutes, five days a week. To assess the outcomes of the intervention, Poulin and colleagues (2008) administered self-report measures on mindfulness, psychological distress, teacher self-efficacy, satisfaction with life, and perceived physical health both before the start of the course, and immediately following program completion. Additionally, five of the MBWE students were interviewed eight-months after the training.

The pre-test measures revealed significant differences between groups, with MBWE participants reporting higher levels of baseline distress than controls. Following the intervention, results indicated that students who received the MBWE training experienced significantly greater increases in mindfulness, satisfaction with life, and teaching self-efficacy than controls. Interestingly, MBWE students' mindfulness levels increased more than controls in two of four subscales of the KIMS, and both groups demonstrated improvement on the other two subscales.

Findings from the psychological distress measure were not significant, but the data suggested that only MBWE participants experienced a decline in distress following the intervention. Additionally, MBWE students demonstrated improvements in perceived physical health, while control group scores remained stable from pre-test measures. During the follow-up interviews MBSE participants indicated approval for the course, sharing that it was highly relevant and practical and offered positive personal and professional outcomes. The authors were encouraged by these findings to engage in further research on the MBWE program, and noted that the lack of random group assignment was a limitation of the study that may have contributed to the significant pre-training differences detected.

Poulin sought to investigate if the short-term benefits observed in the previously discussed study could be replicated with a second cohort of participants in order to assess the longer-term effects of the MBWE training (Poulin, 2009). A quasi-experimental, pre-post-follow up design was implemented for the longitudinal evaluation of two cohorts compared with a non-randomized control group. The same battery of self-report questionnaires used in the first study (Poulin et al., 2008) was administered to measure mindfulness, physical health perception, psychological distress, satisfaction with life, and teaching self-efficacy before training, immediately after, and eight to ten months following program completion. Additionally, a series of interviews were conducted with nine program graduates in order for the author to more deeply understand their experiences.

The study participants were students in the Bachelor of Education program during the 2005 and 2006 fall semesters. The first cohort in Fall 2005 was comprised of 31 MBWE participants and 34 controls, and the second cohort in Fall 2006 contained 32 MBWE trainees and 23 controls. Pre-test measures among the first cohort indicated that MBWE and control participants reported similar levels of psychological distress, life satisfaction, and teaching self-efficacy. Additionally, perceived physical health ratings were higher among controls, and this group also displayed a non-significant trend toward being more mindful than the MBWE group. In the second cohort, pre-test measures revealed that MBWE participants had lower levels of mindfulness and life satisfaction and higher levels of distress as compared to the control individuals. However, it is worth noting that participants were self-selected, and these pre-test differences were likely explained by the fact that students with higher levels of stress may have been more inclined to seek out a course in stress reduction and wellness promotion (Poulin, 2009).

Study results indicated that MBWE is a beneficial intervention for teachers in training, as both cohorts demonstrated increases in mindfulness from pre- to post-test and maintained these improvements at follow-up. Enhancements in mindfulness were generally correlated with decreases in psychological distress and increases in perceived physical health and teaching skills confidence immediately following the training, although this relationship was weaker at follow-up. Participants in the second MBWE cohort demonstrated more robust benefits than those in the first cohort, as they also experienced statistically significant increases in life satisfaction and decreases in psychological distress. The first cohort did not display these outcomes, although the trend was in the same direction (Poulin, 2009).

This could perhaps be explained by quality of instruction, as the instructors may have gained more experience by the time of the second intervention. Notably, a mindfulness facilitator's own mindfulness practice is a key contributing factor to the success of the intervention (Segal, Williams, & Teasdale, 2002). Another possible explanation may have been student openness, as students in the second cohort may have already heard about the course and been open to the subject matter prior to enrolling. Additionally, it is important to consider that this group fared more poorly at baseline than the first cohort, so larger effects may be attributed to the fact that there was more room for improvement.

The follow-up interviews revealed useful information that may have important implications for future program design. Overall, MBWE participants reported being very satisfied with the training and noticed immediate benefits. All participants indicated they had a positive experience, although two participants in the first cohort were initially resistant to learn and practice meditation on the grounds of religion. While their perspectives appeared to change as the course progressed, this highlights an important factor to be aware of when exposing individuals to mindfulness for the first time. Additionally, all participants admitted to struggling with their individual mindfulness practices and found it difficult to commit time outside of class. As such, only two participants reported maintaining a regular meditation practice following the program. This feedback highlights areas for improvement, and provides insight into how programs may be adapted to encourage participants' future engagement.

Community Approach to Learning Mindfully (CALM)

The Community Approach to Learning Mindfully (CALM) program is a combined yoga- and mindfulness-based intervention created specifically for teachers to promote educator social-emotional competencies, stress management, and wellbeing (Harris, Jennings, Katz, Abenavoli, & Greenberg, 2016). Presented in the format of brief daily practices, the intervention was intended to enhance accessibility and facilitate the transfer of skills to the school day. To assess the feasibility and efficacy of the program, Harris and colleagues (2016) randomly assigned 64 educators from two middle schools to either the CALM intervention or a waitlist control. The 16-week program consisted of mindfulness and gentle yoga practices taught over the course of 64 sessions, offered four days a week for 20 minutes before school. Both before and after the intervention, participants were administered self-report surveys to measure social-emotional functioning and wellbeing, as well as blood pressure readings and diurnal cortisol tests.

Results indicated that, compared to the control condition, CALM offered significant improvements for teachers' mindfulness, positive affect, classroom management, distress tolerance, physical symptoms, blood pressure, and cortisol awakening response (Harris et al., 2016). Trend-level effects were also found for two measures related to stress and burnout, and no impacts were found for relational trust, perceived stress, or sleep.

Specifically, CALM participants scored significantly higher in mindful observation and exhibited significant improvement in positive affect scores (but not negative affect) as compared to controls. Teachers in the CALM group also demonstrated more significant reductions in blood pressure and fewer daily physical symptoms than those in the control group. Interestingly, the control group displayed significantly higher post-test cortisol levels. No effects were observed for student engagement or efficacy of instructional practice. The educators who participated in the CALM intervention found the program to be a feasible and beneficial method for managing stress and promoting wellbeing, and the authors suggested that CALM has promise for reducing burnout and enhancing mindfulness, classroom efficacy, and emotional functioning among teachers.

Cultivating Awareness and Resilience in Education (CARE)

Cultivating Awareness and Resilience in Education (CARE) is a program that provides K-12 teachers with emotion skills instruction, mindful awareness practices, and caring and compassion exercises (Jennings, Frank, Snowberg, Coccia, & Greenberg, 2013). The authors' logic model behind the study of this professional development intervention is that the abovementioned practices are hypothesized to produce the outcomes of teacher improvement with regard to wellbeing, efficacy, mindfulness, and classroom improvement in terms of organization and instructional and social support. Additionally, teacher improvement and classroom improvement are then hypothesized to result in student improvement, which is characterized by student-teacher relationships, academic achievement, and behavior. In other words, mindfulness practices are expected to benefit teachers both personally and professionally, which in turn may have a positive impact on their students. Jennings and colleagues (2013) also hypothesized that teachers' classroom management and instructional skills may moderate the effects of the CARE intervention, with more skillful teachers reporting more benefits resulting from the training.

A randomized-controlled pilot trial was conducted to evaluate the impact of the CARE program on teachers' wellbeing, classroom efficacy, burnout, stress, and health. 50 teachers were recruited from urban and suburban public schools across two school districts. After completing a demographic survey, participants were matched based on age, years of teaching experience, grade level, position, and school environment. The matched pairs were then randomly assigned to the CARE intervention or a waitlist control. The CARE intervention was delivered to two cohorts of teachers in the form of an intensive 30-hour program, consisting of four daylong sessions occurring over the course of four to six weeks and one booster two months later (Jennings et al., 2013).

Participants completed a battery of self-report measures at pre- and post- to evaluate general wellbeing, efficacy, burnout/time pressure, and mindfulness, and teachers in the CARE group were also given a post-intervention evaluation of program acceptability. Findings indicated that the CARE program produced significant improvements in educators' wellbeing, efficacy, burnout/time related stress, and mindfulness compared with controls. Overall, teachers were highly satisfied the intervention, with 93% reporting that they strongly agreed or agreed that the program should be integrated into training for all teachers. Additionally, they noticed improvements in classroom management, classroom climate, and relationships with students, and participants in a follow-up focus group revealed that being more aware of emotions enabled them to maintain a less emotionally-charged state and to relate more effectively with students (Jennings, 2016).

A few years after this study, one of the authors published a paper that outlined the theoretical model and history behind the CARE program and summarized the research that had been conducted on the efficacy of the intervention (Jennings, 2016). As in the previous paper, it was indicated that the key to optimizing teacher effectiveness may be through supporting their wellbeing and social emotional competence (SEC) to manage stress and emotion reactivity in the context of the classroom. There are five competencies of SEC, including self-awareness, self-regulation, relationship skills, responsible decision making, and social awareness.

Jennings presented the theoretical Prosocial Classroom Model, which serves to demonstrate the systemic importance of teachers' SEC and wellbeing for achieving positive classroom and student outcomes. This model suggests that teachers' wellbeing and SEC impact the classroom environment and student performance. Specifically, it proposes that teachers high in SEC develop more supportive relationships with students, employ more efficient classroom management tactics, and effectively teach social-emotional skills to their students. This healthy classroom environment may then reinforce teachers' efficacy, enjoyment of teaching, and commitment to the profession, thus generating a positive feedback loop that may prevent burnout (Jennings, 2016).

Based on the Prosocial Classroom Model, mindfulness-based interventions were explored as approaches to promote educator SEC and wellbeing. The CARE program was inspired by earlier research conducted in 2005 on an intervention called Cultivating Emotional Balance (CEB). The eight-week program offered a combination of mindful awareness practices (MAPs) and emotion skills training to a sample of 82 female teachers using a randomized-controlled trial design. The training was found to significantly reduce depressive symptoms and rumination and increase emotional self-awareness, although the program was not designed specifically for teachers. Therefore, the Garrison Institute in New York sought to create a targeted intervention to specifically promote SEC and wellbeing among educators, which resulted in the creation of CARE. The program was designed by a team of educators, and includes combined instruction on the neuroscience of emotion with experiential activities, group discussions, and individual reflections.

The first pilot program of CARE was tested on a group of 17 Denver public school teachers, with all of the participants reporting that the training was beneficial to their professional lives (Jennings, 2016). After the program researchers received funding from the US Department of Education in 2008, a series of studies were launched to empirically evaluate the impact of CARE on educator wellbeing and SEC. The first study (Jennings, Snowberg, Coccia, & Greenberg, 2011) explored pre- and post- intervention changes among a group of 31 teachers in an urban setting, and found that teachers experienced significant improvements in mindfulness and less stress related to time demands. The teachers also demonstrated high levels of satisfaction with the program, and reported improvements in students' behavior and academic achievement.

The second study (Jennings, et al., 2011) took place in a suburban/semi-rural school environment and was conducted among student teachers and their mentors. 16 student teachers and five mentors were randomly assigned to the CARE training program, and 16 student teachers and six mentors received a wait-list control condition. Self-report and observation methods were used to measure changes in educator outcomes and teaching behavior, and no significant treatment effects were found on measures of mindfulness, nor on observations of classroom instruction. Additionally, teachers in this group did not report the same high levels of satisfaction or beneficial professional outcomes as the group in the first study.

Jennings interpreted these differences to indicate two potential explanations worthy of further discussion. First, the significant difference between the groups could have been due to the vastly discrepant school environments in which the studies took place. The first

study was conducted among urban teachers, who may be presented with higher rates of students who have behavioral or academic difficulties, and lower institutional support. Teachers in the suburban/semi-rural environment, on the other hand, had fewer at-risk students and stronger institutional support, and worked in a well-funded district with low turnover rates. Furthermore, the mentors were selected based on excellent performance, so it is possible they felt as if no new information was being offered to them. Therefore, the CARE program might not have been as relevant to the needs of their specific school environment as it was for the urban sample.

The participation of teacher mentors may also provide an explanation for the lack of treatment effects observed in the second study, as student teachers may have been reluctant to fully express their concerns or admit to feeling stressed in the presence of their mentors. Additionally, mentors may provide a buffer against occupational stress for teachers in training, since they have superior teaching skills and years of experience with classroom management. This indicates that CARE may need to be adapted to meet the specific needs of student-teachers, and that organizational hierarchies should be taken into account for future program implementation since supervisor presence may inhibit participation. The third pilot program reviewed in the paper was the abovementioned 2013 study by Jennings and colleagues previously outlined in detail.

A recent 2017 paper presented the results of another CARE program study conducted by Jennings and colleagues to evaluate the impacts of the intervention on teachers' SEC and classroom interactions (Jennings et al., 2017). A cluster randomized trial design was implemented using two cohorts of 224 teachers from 36 urban elementary schools in a high-poverty region of New York City. High-poverty schools were selected for the study based on the results of the previously discussed research indicating that the CARE program was most beneficial for teachers in urban environments (Jennings et al., 2011). Additionally, elementary schools were chosen since teachers at this grade-level spend the majority of the day with the same group of students, allowing for dimensions of classroom interactions to be more easily observed. The program was offered to one cohort at a time over back-to-back academic years (2012 and 2013), and involved 30 hours of in-person training across five training days, as well as intersession phone coaching. Teachers were randomized within the schools to either the CARE program or a control condition consisting of standard professional development activities assigned by the respective schools. Teachers in the control group were invited to participate in the CARE intervention following study completion, with 51% accepting the offer and ultimately completing the program.

Participants completed pre- and post-test self-report measures on various dimensions of SEC and wellbeing, as well as assessments of their students. Teachers' classroom instruction was observed and coded using the Classroom Assessment Scoring System (CLASS; Pianta, La Paro, & Hamre, 2008). The results found that CARE teachers exhibited higher levels of emotion regulation and mindfulness and lower levels of psychological distress and time urgency compared to controls (Jennings et al., 2017). Specifically, educators in the CARE group reported a 14% improvement in emotion regulation abilities, 11% increase in overall mindfulness, 7% reduction in psychological

distress, and 8% decrease in sense of time urgency compared with those in the control condition. Additionally, a 9% decline was reported for emotional exhaustion, a dimension of occupational burnout that the authors noted is negatively correlated with job performance, workplace satisfaction, teaching efficacy, and turnover. Despite this, the CARE teachers did not report higher levels of teaching efficacy compared to controls.

In terms of classroom interactions, independent raters using the CLASS observed that CARE teachers provided higher levels of emotional support compared to controls. Moreover, they demonstrated a 9% increase in positive climate and teacher sensitivity from pre- to post. On the other hand, teachers in the control condition demonstrated declines in emotional support over the course of the school year. As CARE teachers' levels of classroom emotional support remained stable from pre- to post, Jennings and colleagues (2017) suggested that the intervention offered a protective effect against declines. The significant increases in sensitivity observed among the CARE group related to teachers' awareness and responsiveness to student needs, suggesting that these factors may be improved by mindfulness training.

The authors interpreted the improvements found among both individual teachers and the classroom as a whole as lending support for the CARE program model. Moreover, they noted that these findings were consistent with previous models demonstrating that mindfulness increases teachers' emotion regulation and coping abilities. This then leads to declines in stress, burnout, and distress and increases in energy and self-regulatory processes that can be invested in improving classroom interactions and supporting student learning (Jennings et al., 2017). Despite these promising outcomes, the authors also noted that a key limitation of the study was the fact that teachers participated voluntarily. As such, the reported benefits may not be generalizable to teachers who are mandated to participate, which is an important factor to consider if the ultimate goal is for CARE or other mindfulness-based interventions to become a required, standardized component of teachers' professional training.

Discussion

Implications

The various studies of mindfulness-based interventions for educators reviewed in the previous section collectively indicate that mindfulness may be an effective strategy for reducing, and even protecting against, the incidence of occupational stress and burnout among this population. Not only do mindfulness-based interventions appear to mitigate the experiences of stress, burnout, and physical symptoms among teachers, but they also promote positive outcomes such as increases in mindful awareness, emotion regulation, and self-efficacy. These findings have promising implications, as they directly relate to two key factors of teacher stress and burnout previously discussed: teacher-student relationships and teacher self-efficacy.

A number of studies presented in this literature review (Farber, 1984; Abel & Sewell, 1999; Clunies-Ross et al., 2008; Split, et al., 2011) indicated that the teacher-student relationship played a central role in educators' experiences of stress and burnout. While student misbehavior was identified as a significant and consistent predictor of teacher stress (Abel & Sewell, 1999), positive student interactions were found to be

frequent sources of satisfaction (Farber, 1984) that provided teachers with internal rewards and a sense of meaning in their work (Split, et al., 2011). Clearly, the teacher-student relationship is a critical component of the teaching profession that has the potential to either contribute to, or prevent against, educators' feelings of stress and burnout. Given that mindfulness training improves teachers' levels of mindfulness and emotion regulation, and thereby allows them to relate with students more effectively (Jennings, 2016) and to be more attentive and responsive to their needs (Abenavoli, et al., 2013), it stands to reason that mindfulness-based interventions have the potential to improve teacher-student relationships and thus address a major component of teacher stress and satisfaction.

The literature also shows promise that mindfulness may increase self-efficacy, which has been directly linked to burnout in this population. As previously discussed, Schwarzer and Hallum (2008) found that teachers low in self-efficacy may be more vulnerable to burnout due to their lack of personal resourcefulness impacting the experience of job-related stress. Meiklejohn and colleagues (2012) discussed that mindfulness can increase teaching self-efficacy and improve classroom management abilities, and the studies conducted on the MBWE (Poulin, et al., 2008; Poulin, 2009), CALM (Harris, et al., 2016), and CARE (Jennings, et al., 2013) programs all cited improvements in either teaching self-efficacy, classroom management efficacy, or both. This specifically relates to the concept of classroom management self-efficacy (CMSE) explored by Aloe and colleagues (2014), who found that teachers high in CMSE are less likely to experience burnout. Therefore, since mindfulness training seemingly promotes various forms of self-efficacy among teachers, the implications of using mindfulness to address educator burnout are clear.

Best Practices

The intervention studies reviewed in this paper, which encompassed different types of programs, teacher populations, and school settings, shed some light onto potential best practices for offering mindfulness training to educators. As each of the specialized interventions discussed (MBWE, CALM, and CARE) provided benefits to the populations they served, it is not possible to conclusively state that one in particular is better than the rest. However, as was previously mentioned, it is seemingly more beneficial to offer educators a program that has been adapted to meet their specific occupational needs, rather than a generalized employee mindfulness intervention.

The literature also suggested that mindfulness-based interventions may be more needed, and thereby more effective, amongst specific types of educators. Teachers who are more ambitious (Abenavoli, et al., 2013), dedicated, committed, and motivated (Zhang & Sapp, 2008), as well as idealistic and passionate (Farber, 1984) may be more prone to burnout. This is important for school administrators to be aware of, as they may consider providing mindfulness training to prevent burnout among their most committed teachers.

Junior high/middle school educators were also found to be more at risk for burnout (Farber, 1984), which indicates that teachers at this grade level may require more attention and resources for coping with occupational stress. Lastly, Jennings and colleagues (2011) found that teachers who worked in urban settings seemed to benefit more from the CARE program than teachers in suburban-semi rural environment, likely because schools in high-

poverty, urban settings have higher incidences of student misbehavior and lower institutional support. Based on these findings, it is reasonable to suggest that mindfulness-based interventions may be most needed, and thus most effective, among educators in urban areas and middle schools. This may help to guide future research, as well as provide school boards that are considering mindfulness-based interventions with valuable information about which populations are most at risk and could benefit the most.

Limitations

While the various programs studied seemed to offer a range of benefits, the literature on mindfulness-based interventions for educators has some limitations that require further consideration. One specific limitation that was found among most of the studies included in this literature review was the use of small sample sizes. Specifically, six out of the 14 studies reviewed had sample sizes less than 60. Additionally, a number of studies included predominantly female samples, which indicates that stress may be more prevalent among female teachers as discussed by Franco and colleagues (2010). This is important to be aware of, yet may limit the generalizability of the findings if the research did not control for gender.

Another limitation in the overall research design was the frequent use of self-report measures only, which appears to be the most common method of measurement used in studies of mindfulness-based interventions. Self-reported improvements may not offer the most accurate reflections of program efficacy, since teachers who go through an intervention may naturally expect to experience positive outcomes upon completion. Therefore, future research should aim to incorporate more objective measures to chart changes in stress and burnout levels, such as the measures of morning cortisol responses and blood pressure levels utilized by Harris and colleagues (Harris, et al., 2016).

Lastly, there appeared to be specific aspects of the interventions that limited their efficacy among participants in some of the studies. For example, in the study (Jennings et al., 2011) that included a sample of student teachers and their mentors, it was observed that the teachers in training may not have fully benefitted from the program due to the presence of their mentors. This suggests that supervisor presence may impose restrictions on teachers' abilities to completely engage in the intervention, and therefore implies that programs are best implemented separately for teachers and supervisors.

One important issue that surfaced in the longitudinal evaluation of the MBWE intervention for student teachers (Poulin, 2009) was the reported difficulty participants had maintaining an independent mindfulness practice both during and after the program. All of the participants struggled to commit time outside of the class to practice exercises, and only two teachers reported maintaining a regular meditation practice following program completion, while the remainder cited time constraints or prioritizing other tasks (Poulin, 2009). This indicates that while mindfulness-based interventions may offer participants benefits over the duration of the training, there should be a greater focus on teaching them the skills and resources needed to maintain their own practice in order to bolster the program's overall lasting efficacy and impact.

While the search for literature on the topic of mindfulness and educator stress and burnout yielded a number of results, the studies reviewed herein have indicated that this

area of research is still growing and evolving. As the incidence of stress and burnout among teachers has become a mounting concern over the years, it is encouraging that researchers have appreciated the gravity of these issues and have sought to develop effective solutions. The research thus far suggests that mindfulness-based interventions designed specifically for teachers do, in fact, hold promise, however further study is needed to refine the available programs and test them among larger, more diverse samples in order to maximize their efficacy and generalizability.

3. Conclusion

Despite the research design and program limitations previously discussed, the studies evaluated in this literature review overall indicate that mindfulness-based interventions serve as effective tools for reducing, and even preventing, occupational stress and burnout among educators. Mindfulness seems to directly address the central aspects related to teacher stress (student relationships, coping resources, and personality factors) and burnout (self-efficacy), and therefore provides administrators with a promising opportunity to equip their teachers with the coping skills needed to keep them motivated, effective, and most importantly, committed to the profession. Investing in an educator mindfulness program seemingly offers schools a cost-effective solution to the issues of stress-related turnover, attrition, and reduced performance that has become increasingly prevalent among teachers.

On the level of the individual teachers, mindfulness training provides important coping resources that enhance their personal wellbeing, job satisfaction, and sense of self-efficacy. Moreover, as teachers' personal wellbeing has been shown to influence both their professional performance and the classroom environment, fostering educator mindfulness also has important benefits for students and the school as an organization. As teachers play an integral role in society by inspiring youth and shaping the minds of future leaders, their personal wellbeing and professional efficacy are of paramount importance. Therefore, integrating a specialized mindfulness program into teachers' professional training is seemingly a worthwhile endeavor that has the potential to not only prevent stress and burnout, but to promote educators' personal and professional flourishing.

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