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The Effects of Mindfulness-Based Stress Reduction on K-12 Educator Stress, Burnout, and Well-Being

Abstract

The purpose of this randomized, controlled study was to examine the effects of mindfulness-based stress reduction (MBSR) intervention, on educator stress, well-being, and burnout. A total of 44 educators volunteered to participate in this study: 22 were randomized into an 8-week MBSR intervention using a 100% virtual platform, and 22 were randomized into a control group that did not receive the MBSR intervention. Preand post-intervention assessments were collected from each participant using validated scales that measured the participants' overall well-being, stress, and components of burnout. This study conclusively shows that MBSR can reduce the levels of self-reported stress, anxiety, and burnout among K-12 educators. Although the delivery method of the course was 100% virtual, the effect sizes were comparable to, and in many instances greater than, the effects seen in previous studies using an in-person platform. Along with decreased levels of stress, anxiety, and emotional exhaustion, greater incidences of mindfulness, sense of personal accomplishment, and workload management and control were also evident. Recommendations include financial support from federal and state sources to enable each school district to offer MBSR to all K-12 educators as an effective means to combat stress, anxiety, and burnout and to reduce costs of teacher turnover. Future studies should include follow-up with participants up to 1 year after the completion of MBSR, while another study could compare the effects of MBSR on educators with different levels of experience (i.e., preservice, probationary, and experienced/tenured).

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The Effects of Mindfulness-Based Stress Reduction on K-12 Educator Stress,
Burnout, and Well-Being

By

Carmen Gumina

Submitted in partial fulfillment
of the requirements for the degree
Ed.D. in Executive Leadership

Supervised by

Dr. Guillermo Montes

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Dr. Michael Wischnowski

Ralph C. Wilson, Jr. School of Education

St. John Fisher College

August 2021

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Dedication

There are three “families” that made this accomplishment possible: Fisher, Webster, and Gumina. I am so fortunate to have had my Cohort 14 colleagues who were so kind and supportive from our first day to our last. We shared so much joy and a few tears, as well, but their friendship is even more important than being called “Doctor.” My Fab Fisher Five fam of Theresa Roma, Michael Seils, Emma Overby, and Chloe Williams became my brothers and sisters, and their encouragement was invaluable.

Also, I am so thankful for the guidance, wisdom, and compassion shown by Dr. Montes (a brilliant dissertation chairman), Dr. Wischnowski (a patient and wise committee member), Dr. Cleverley-Thompson (my exemplar of grace, patience, and leadership who grew to love my use of parentheses), and Dr. Cianca (whose ability to make meaningful connections through humor and high expectations is admirable).

My Webster CSD family of Brian Neenan, David Swinson, Brian Freeman, Colleen Armstrong, and Erin Land have enabled me to have the confidence to give up some control and just “trust the process.” I ride on your coattails much of the time. Although Ms. Erica Ebert has left Webster for bigger things, her expertise in mindfulness and teaching, and her willingness to teach MBSR for my study, will always be remembered and appreciated. I am also so thankful for the WCSD Board of Education who approved of my enrollment into the Ed.D. program at SJFC. Tammy Gurowski, Linda Dioguardi, Sue Casey, Michael Suffoletto, Janis Strege, and Maria Rigillo have influenced my life for decades.

Lastly, I want to thank my Gumina family. Thank you, Dad, for being the greatest teacher I have ever known, and thank you Rory, Greg, and Buddy, for your brotherly support and humor. Saving the best for last, I dedicate this accomplishment to the three most important women in my life, Sheri, Gracie, and Adriana. Your love has been unconditional and your support, unwavering.

Biographical Sketch

Carmen Gumina is a 32-year veteran educator and currently the superintendent of the Webster Central School District. Mr. Gumina attended Binghamton University from 1982 to 1985 and graduated Phi Beta Kappa with a Bachelor of Science degree in Biology in 1985. He attended the University of Rochester School of Medicine as a Sproull Fellow from 1986 to 1989 and graduated with a Master of Sciences degree in Microbiology and Immunology in 1989.

Carmen was a biology teacher for the Webster CSD for 13 years, earning the Disney American Teacher of the Year award, before becoming an administrator and serving as assistant principal and principal at State Road Elementary School. He then served as WCSD's deputy superintendent before moving into his current role as superintendent in 2014.

He came to St. John Fisher College in the summer of 2019 and began doctoral studies in the Ed.D. Program in Executive Leadership. Mr. Gumina pursued his research on the effects of mindfulness-based stress reduction on the levels of stress, anxiety, and burnout among K-12 educators under the direction of Dr. Guillermo Montes and Dr. Michael Wischnowski and received the Ed.D. degree in 2021.

Abstract

The purpose of this randomized, controlled study was to examine the effects of mindfulness-based stress reduction (MBSR) intervention, on educator stress, well-being, and burnout. A total of 44 educators volunteered to participate in this study: 22 were randomized into an 8-week MBSR intervention using a 100% virtual platform, and 22 were randomized into a control group that did not receive the MBSR intervention. Pre- and post-intervention assessments were collected from each participant using validated scales that measured the participants' overall well-being, stress, and components of burnout.

This study conclusively shows that MBSR can reduce the levels of self-reported stress, anxiety, and burnout among K-12 educators. Although the delivery method of the course was 100% virtual, the effect sizes were comparable to, and in many instances greater than, the effects seen in previous studies using an in-person platform. Along with decreased levels of stress, anxiety, and emotional exhaustion, greater incidences of mindfulness, sense of personal accomplishment, and workload management and control were also evident.

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MBSR, while another study could compare the effects of MBSR on educators with different levels of experience (i.e., preservice, probationary, and experienced/tenured).

Table of Contents

Dedication.....	iii
Biographical Sketch.....	v
Abstract.....	vi
Table of Contents.....	viii
List of Tables.....	x
List of Figures.....	xi
Chapter 1: Introduction.....	1
Teacher Stress and Turnover.....	1
Theoretical Frameworks.....	4
Problem Statement.....	21
Research Questions.....	22
Chapter Summary.....	23
Chapter 2: Review of the Literature.....	24
Introduction and Purpose.....	24
The Relationship of Mindfulness and MBSR on Burnout, Stress, and Well-Being.....	26
Studies Outside of the Educational Setting.....	27
Studies Within the Educational Field.....	32
Methodological Review.....	41
Substantive Gaps.....	43
Chapter 3: Research Design Methodology.....	45

Introduction.....	45
Research Design.....	46
Instruments Used in Data Collection	49
Procedures for Data Analysis.....	56
Summary	56
Chapter 4: Results	57
Data Analysis and Findings	58
MBSR Efficacy on Educator Burnout	59
Summary of Results	64
Chapter 5: Discussion	66
Introduction.....	66
Implication of Findings.....	67
Limitations	71
Recommendations For Future Researchers	73
Recommendations For Administrators and Policy Makers	75
Conclusion	76
References.....	78
Appendix.....	87

List of Tables

Item	Title	Page
Table 4.1	Two-Tailed Independent Samples <i>t</i> -Test for Participant Demographics	58
Table 4.2	Two-Tailed Independent Samples <i>t</i> -Test for Maslach Burnout Inventory – Educator’s Survey	59
Table 4.3	Two-Tailed Independent Samples <i>t</i> -Test for AWS – Workload	60
Table 4.4	Two-Tailed Independent Samples <i>t</i> -Tests for the STAI	61
Table 4.5	Two-Tailed Independent Samples <i>t</i> -Test for Perceived Stress	62
Table 4.6	Two-Tailed Independent Samples <i>t</i> -Test for the FFMQ	63
Table 4.7	Two-Tailed Independent Samples <i>t</i> -Test for Biweekly Check-In Surveys	64
Table 4.8	MBSR Efficacy on K-12 Educators	65
Table 5.1	Comparison of Cohen’s <i>d</i> to Previous Studies	68

List of Figures

Item	Title	Page
Figure 3.1	CONSORT Flow Diagram	48

Chapter 1: Introduction

Teacher Stress and Turnover

Teachers create learning environments within their classrooms that nurtures a student's physical, social–emotional, and academic well-being. However, the profession is fraught with stressors including workload, student management, accountability around high-stakes tests, and organizational factors (i.e., the lack of administrative support, classroom resources, and communication structures) (Flook et al., 2013). These stressors can lead to teacher stress, anxiety, and attrition leading to turnover and burnout (Flook et al., 2013).

Garcia and Weiss (2019a) stated that a myriad of conditions impede teaching, such as lack of preparation and engagement by students and their parents. Nearly 22% of teachers expressed concerns for their safety (Garcia & Weiss, 2019b). Adding to their stress, “teachers reported a level of conflict with—and lack of support from—administrators and fellow teachers” (Garcia & Weiss, 2019b, p. 2). The teachers also felt as if they had little sway in their work, with 71.3% of study participants reporting that they had little autonomy regarding what materials they used and the content of what could actually be taught (Garcia & Weiss, 2019b). Nearly 5% of educators also doubted that the stress encountered in the classroom was worth it, and almost half (48.7%) expressed dissatisfaction in their profession (Garcia & Weiss, 2019b). Garcia and Weiss (2019) also reported that 27.4% of the participant educators think of exiting the

profession with over half of the teachers would think about entering a different profession if they could redo their college decision.

Another factor that may contribute to the overall stress load for educators is the amount of debt they may face after graduating from an undergraduate or graduate teacher certification program. Gonzalez et al. (2018) found that 65% of college seniors who graduated from college in 2018 had loan debt averaging \$29,200, a slight increase over the debt load seen in the class of 2017. In 21 states, the average college education debt in 2018 exceeded \$30,000, with New York State students averaging \$31,127, which ranked 15th in the nation (Gonzalez et al., 2018).

Educators must navigate their way through the daily elements of stress on a weekly, monthly, and yearly basis. Stress is so ubiquitous that nearly 50% of all teachers not only report experiencing daily stress, but they report high levels of daily stress (Bushaw & Calderon, 2014; Markow & Pieters, 2012). Given these statistics, it is not surprising that teacher dissatisfaction is still ubiquitous (Markow & Pieters, 2012).

Reflecting on the statements mentioned above, it is understandable that the stressors common to educators lead to burnout and increased rates of teacher attrition and turnover. Retaining teachers is a challenge seen across the world in nearly all developed countries including the United States, Canada, and the United Kingdom (Organization for Economic Cooperation and Development [OECD], 2005). Attrition in teaching is higher than in nearly all other occupations, including nursing and law enforcement. Estimates suggest that an average of 10-13% of new teachers leave the profession after their first year (Ingersoll & Merrill, 2013) with nearly half of all new educators transferring to a new

school or leaving the profession within 5 years of beginning their first school position (Ingersoll, 2001, 2014).

Garcia and Weiss (2019a) reported that the dearth of qualified teachers results in staff instability, a decrease in teacher effectiveness, and, ultimately, a reduction in students' ability to learn. High teacher turnover, in turn, results in the redeployment of financial and human capital resources, which can have negative consequences for school climate and culture (Garcia & Weiss, 2019a). Filling a vacancy in 2017 costs, on average, \$21,000 (Carver-Thomas & Darling-Hammond, 2017), and the annual cost of teacher turnover is expected to exceed \$8 billion in 2020 (Carroll, 2007).

Teacher turnover harms students' achievement (Tarrasch, 2019). Effects of teacher turnover was examined by Ronfeldt et al. (2013) using 850,000 urban fourth- and fifth-grade student observations over 8 years. The study showed that turnover can exert its deleterious effects not only on students of those teachers who leave but also on the students of those colleagues who stay (Ronfeldt et al., 2013). Turnover has been shown to have a disruptive organizational influence, meaning that teachers who remain in their current roles are negatively affected because of the loss of collegiality, relational trust, and institutional knowledge (Ronfeldt et al., 2013). The disruptive organizational influence, therefore, negatively affects students—even in the classrooms of the teachers who do not leave their profession and classroom (Ronfeldt et al., 2013).

According to Garcia and Weiss (2019a), "The teacher shortage makes it more difficult to build a solid reputation for teaching and to professionalize it, which further contributes to perpetuating the shortage" (p. 3). The researchers also emphasized the shortage is more pronounced in communities with low socioeconomic status, which

affects our country's goal of equity and access of educational opportunities for all children (Garcia & Weiss, 2019a).

The cumulative effects of these stressors can lead to teacher burnout. Teachers who succumb to the components of burnout and remain in the classroom can, in essence, impact the academic and social-emotional well-being of their students in a negative way, and the ramifications of continuing to teach, while in a state of burnout, may be similar to the consequences resulting from teachers who have left the profession (Abenavoli et al., 2013; Flook et al., 2013; Ronfeldt et al., 2013).

Theoretical Frameworks

There are two theoretical frameworks that guide this study, namely burnout and the neurobiology of stress and mindfulness. The concept and theory of burnout is described by the seminal research of Maslach and Leiter. The neurobiology of stress and mindfulness is based on the research from McEwen and Osorio as well as the findings from Kabat-Zinn.

Burnout and the Neurobiology of Stress and Mindfulness

Burnout. Burnout is a “prolonged response to chronic emotional and interpersonal stressors on the job” (Maslach et al., 2001, p. 1). Maslach (2017) described the three dimensions of burnout as exhaustion, cynicism, and a decline in professional efficacy and one's sense of personal accomplishment. The core of burnout is exhaustion, and it is the most widely reported regardless of occupation (Maslach et al., 2001). This component sees the employee worn out, depleted, debilitated, and fatigued, and it reflects the stress dimension of burnout (Maslach, 2017; Maslach et al., 2001). Exhaustion leads to a person removing or distancing oneself from the responsibilities and personal

interactions in the job with the hope that one can deal with the sense of work overload (Maslach et al., 2001). This distancing is also referred to as depersonalization (Maslach et al., 2001).

Cognitive and emotional distancing leads to indifference and a cynical attitude, and they are nearly always the immediate reactions to exhaustion (Maslach et al., 2001). This cynicism was described by Maslach (2017) as an individual having negative or inappropriate attitudes toward clients, becoming irritable and withdrawn, and losing idealism. Maslach et al. (2001) concluded that exhaustion and cynicism interfere with one's vocational effectiveness, leading to a sense of inefficacy. Maslach et al. (2001) stated, "It is difficult to gain a sense of accomplishment when feeling exhausted or when helping people toward whom one is indifferent" (p. 403). The inefficacy dimension has also been referred to as a reduced personal accomplishment, and with this comes a lack of productivity and low morale (Maslach, 2017). Maslach (2017) stated, "Basically, workers who are experiencing burnout are overwhelmed, unable to cope, and unmotivated, and they display negative attitudes and poor performance" (p. 144).

Emotional Exhaustion Component and Its Relationship with Surface Acting.

Many employees in the service sector, including educators, interact directly with customers, clients, or students and their families (Leidner, 1999). Some, if not many, of the interactions with customers (or students) may be tense or tinged with emotion and drama; and the employees need to tend to these emotions (Hulsheger et al., 2013). This is referred to as emotional labor, and this "labor" makes employees vulnerable to emotional exhaustion and reduced job satisfaction (Hulsheger et al., 2013).

When confronted with emotional labor, an employee whose primary interactions are with the public (i.e., clients, customers, and students and their families) must behave and emotionally respond in such a way that the behavior seems normal and within the norms dictated by their role within their organization (Rafaeli & Sutton, 1987). There are times, however, when the employee faces a discrepancy between how they truly feel and how they need to respond given their work role and responsibilities (Hulsheger et al., 2013). For example, an employee may be offended by a customer, and their initial emotional response may be one of anger, fear, shame, or sadness with an impetus to respond harshly (Hulsheger et al., 2013). The employee may then rely on an emotional regulation strategy referred to as “surface acting” (Grandey, 2003; Grandey & Diamond, 2010; Hulsheger et al., 2013).

As described by Hulsheger et al. (2013), “Surface acting aims at altering the outward emotional expression without changing the actual feeling, and it involves suppressing negative and faking positive emotional expressions for jobs holding positive emotional display rules” (p. 313). In other words, surface acting is akin to “biting one’s tongue” when confronted with angry clients, stress, and hostility. Hulsheger et al. (2013) and Grandey (2003) both reported that surface acting negatively affects employee well-being by increasing emotional exhaustion and the rate of negative social interactions with customers. Much of the emotional labor literature is focused on diminishing an employee’s reliance on surface acting; this is accomplished by increasing the person’s access to healthy and effective strategies for interacting with customers (Grandey, 2003; Hulsheger et al., 2013).

The “Areas of Worklife” Conceptual Model of Burnout. There have been several conceptual models (i.e., areas of worklife, job demands-resources, and conservation of resources) that explain the development of burnout and its resulting impact (Bakker & Demerouti, 2007; Hobfoll & Freedy, 1993; Maslach & Leiter, 2016). One such model that may relate to the teaching profession is areas of worklife. According to Maslach and Leiter (2016), there are six areas of a person’s worklife in which a mismatch or imbalance could take place: workload, control, reward, communities, fairness, and values. A mismatch in one or more of these areas can increase a person’s level of stress and burnout (Maslach & Leiter, 2016). The greater the level of match between the person and the job, the greater level of success and engagement that person may experience within the workplace. Conversely, if there is a mismatch with one or more of the areas, then there is a higher probability that the person will experience stress, anxiety, and burnout (Maslach & Leiter, 2016).

Excessive Workload. Work overload depletes the capacity of employees to meet the demands of their jobs, and its effects worsen if this sense of overload is chronic with little time to recover (Maslach & Leiter, 2008, 2016). In contrast, a manageable workload leads to a sense of efficacy with time to improve upon their job skills and possibly expand their area of expertise (Landsbergis, 1988; Maslach & Leiter, 2016). In education, overload can manifest itself in the form of excessive classroom, curriculum, and student-behavior demands.

Lack of Control. There is a strong correlation between a lack of control and burnout (Maslach & Leiter, 2016). On the other hand, active participation in the decision-making process is directly linked to an increased sense of autonomy and efficacy and

lower levels of burnout (Maslach & Leiter, 2008). Maslach and Leiter (2008, 2016) found that employees will more likely experience job engagement when there is increased autonomy and ability to contribute to those decisions that affect a person's work. Educators may report a lack of control when decisions are perceived as being "top-down" with no teacher input (Maslach & Leiter, 2016).

Rewards. Reinforcements and rewards can affect an employee's behavior. Insufficient levels of reward and recognition devalue both the worker and the work and can lead to feelings of inefficacy and an increased vulnerability to burnout (Maslach & Leiter, 2008, 2016). In contrast, appropriate levels of reward can lead to an increased sense of job engagement and intrinsic motivation, satisfaction, and pride (Maslach & Leiter, 2008; Richardsen et al., 1992). Educators may feel as if their salaries are not in line with the importance of their roles—especially when their student loan debt is considered (Maslach & Leiter, 2008, 2016).

Lack of Support and Community. Community encompasses the social interactions that help develop workplace relationship with coworkers (Maslach & Leiter, 2008, 2016). A sense of community and social support promotes job engagement and feelings of equity at work (Maslach & Leiter, 2008). When relationships are not anchored in support and trust, the occurrence of unresolved conflict and the risk of burnout increases (Maslach & Leiter, 2016). Teachers may find the climate and culture within their school lacking due to the stress (and resultant levels of burnout) that they and their colleagues are experiencing (Maslach & Leiter, 2016).

Fairness. Fairness is linked with the concepts of equity and social justice, and it includes the sense by which employees feel they are being treated justly and equitably

(Maslach & Leiter, 2016). If employees feel as though they are not being treated respectfully, then cynicism, anger, and hostility will typically arise (Maslach & Leiter, 2016). Teachers and their colleagues may not feel as if the community and their administration truly respect the challenges that they face within the classroom. In contrast, “employees who perceive their supervisors as being both fair and supportive are less susceptible to burnout and are more accepting of major organizational change” (Maslach & Leiter, 2008, p. 500).

Conflict with Values. Maslach and Leiter (2008) defined the area of values as “the ideals and motivations that originally attracted a person to their job, and they are the motivating connection between the worker and the workplace” (p. 501). The occurrence of a conflict in values will lead to an ethical dilemma for the employee: “Am I allowed to do the work I want to do, or am I forced to complete the work I am being pressured to do?” This values gap can lead to greater levels of burnout (Maslach & Leiter, 2008, 2016). On the positive side, according to Leiter et al. (2007), a match between organizational and personal values leads to greater engagement as well as a greater sense of efficacy.

In summary, the mismatch that a person may experience in any of the six areas of worklife may increase a person’s susceptibility to burnout or any of its components (i.e., exhaustion, cynicism, and professional inefficacy). There may, therefore, exist a positive feedback loop where the degree of mismatch leads to increased levels of stress within the employee, and the elevated stress results in more intense experiences of exhaustion, cynicism, and inefficacy. These experiences then result in even more perceived stress, and the cycle continues a downward spiral.

Is there an intervention that can aid the employee in managing the stress, thereby short-circuiting this feedback loop? How would this intervention manage stress? These two questions are addressed in the following section describing the science behind stress and mindfulness.

The Neurobiology of Stress and Mindfulness

Stress. Stress is defined as “a physiological and psychological reaction of the body toward an event (or stressor) that can be perceived as either challenging or threatening” (Osorio et al., 2017, p. 307). When an individual sees a challenge as exciting and manageable, it can lead to a sense of accomplishment, “while threatening experiences can result in short- or long-term declines in physiological and psychological health” (Osorio et al., 2017, p. 307). McEwen (2007) defined “good stress” as “those experiences that are of limited duration and that a person can master and that leave a sense of exhilaration and accomplishment” (p. 874). McEwen (2007) described “bad stress” or “being stressed out” as “experiences where a sense of control and mastery is lacking and where the experiences are often prolonged or recurrent, irritating, emotionally draining, and physically exhausting or dangerous” (p. 874). Levinsohn and Ross (2017) stated, “On one hand, in keeping with the idea that ‘what doesn’t kill me makes me stronger,’ manageable stress can have an inoculating effect, increasing one’s future capacity for tolerating similar adversity in the future” (p. e89). However, excessive stress can also result in overwhelming and debilitating effects on the physiology and psychology of individuals and lead to anxiety and burnout (Levinsohn & Ross, 2017).

The brain regulates responses within an individual, and these responses may be beneficial for the individual or may end up having damaging physiologic or psychologic

effects (Osorio et al., 2017). This same organ is also “responsible for establishing a two-way communication between itself and the immune and cardiovascular systems via endocrine and neural mechanisms during the stress response,” (Osorio et al., 2017, p. 307). During a typical stress response, the autonomic nervous system (ANS) and the hypothalamo-pituitary-adrenal (HPA) axis are activated (McEwen, 2007, Osorio, et al., 2017). The ANS and HPA can then trigger the fight-flight-or-freeze response in an individual as they attempt to respond to what they perceive is a dangerous situation, be it a predator, an accident, or the stressful classroom conditions that an educator may face (McEwen, 2007). Any person experiencing a fight-flight-or-freeze response needs a normal stress hormone response to survive such situations (McEwen, 2007). It has been shown that human beings are prone to prolonged periods of elevated hormone levels and ANS and HPA activity, and this can help individuals survive more acute challenges (Karatoreos & McEwen, 2013; McEwen, 2007). McEwen (2007) stated, “This prolonged elevation may be due to anxiety; to constant exposure to adverse environments . . . and to changes in life-style and health-related behaviors that result from being under chronic stress” (p. 874). Adverse environments could include seemingly excessive job demands and interpersonal conflict

The hormones and neural networks involved in mediation of stress can have protective effects as well as damaging ones (McEwen, 2007; Osorio et al., 2017). McEwen (2007) defined two terms, allostasis and allostatic overload. Allostasis helps to maintain homeostasis by releasing stress hormones and other mediators (McEwen, 2007). Allostatic overload refers to the ablation and depletion on the body and brain from repeated chronic exposure to neuroendocrine responses, “when the mediators are

dysregulated and not turned off when the stress is over or not turned on adequately when they are needed” (McEwen, 2007, p. 874). It is also evident that those threats that an individual may ruminate upon, such as unachieved goals or blame for life’s mishaps, also play a role in allostatic overload (Karatoreos & McEwen 2013; Schulkin et al., 1994).

The brain is vital in the interpretation of experiences as being either threatening or safe, and then it helps to regulate the responses to such experiences (McEwen, 2007). The amygdala tends to be the fear center of the brain, and it regulates emotionality and aggression (Karatoreos & McEwen, 2013; McEwen, 2007). The hypothalamus and brain stem are responsible for the autonomic responses to stress (Karatoreos & McEwen, 2013; McEwen, 2007). The prefrontal cortex and hippocampus are two higher cognitive areas that play a key role in memory, anxiety, and decision making (Karatoreos & McEwen, 2013; McEwen, 2007). Interventions taking the form of pharmacologics, learned behaviors, or psychotherapies, can alter these brain areas and the neurochemistry therein (Karatoreos & McEwen, 2013). The resulting changes may allow a person to better cope with internal and external stressors (Karatoreos & McEwen, 2013). These interventions include those that are based on the concept of mindfulness.

Mindfulness. Since the late-1970s, there has been an increased interest in mindfulness in the Western hemisphere within clinical and medical practices, academia, and society more broadly. Its roots are in the context of Buddhism going back 2,500 years to the time of the Buddha (Cousins, 1996). According to Brown et al. (2007), “[Mindfulness] shares conceptual kinship with ideas advanced by a variety of philosophical and psychological traditions, including ancient Greek philosophy;

phenomenology, existentialism, and naturalism in later Western European thought; and transcendentalism and humanism in America” (p. 212).

According to Ditrich (2016), modern Buddhism adjusted, simplified, and reinvented mindfulness along with making meditation popular among the laity. This simplification was also chaperoned by assurances of quick results, and this mediated further popularization, first from Buddhist monastics to Buddhist lay practitioners, and then to the new stage, that is, the modern secular interpretations and applications of mindfulness (Ditrich, 2016). Meditation from Buddhist practices in Asia and Europe gradually spread worldwide in the 1970s, and new interpretations of mindfulness developed that perceived it, mainly, as a form of awareness training, with the benefits of enhanced psychological well-being and a tool for self-improvement in therapeutic contexts (Ditrich, 2016).

Mindfulness came to prominence in the West mainly through the work of Kabat-Zinn (1982) who developed the MBSR program in a medical setting to treat chronic pain. Kabat-Zinn (1982) made it a point to secularize this practice and to separate it from any tie to Buddhism. He stated, “We’re not trying to disguise Buddhism and sneak it in. We’re not talking about Buddhism, we’re talking about mindfulness” (Rapaport et al., 1998, p. 111). Kabat-Zinn (2005) acknowledged Buddhism’s primary influence on the type of meditation employed in MBSR, but he also made it clear that one needs to remove the Buddhist context. Kabat-Zinn (1994) wrote,

When we speak of meditation, it is important . . . to know that this is not some weird cryptic activity, as our popular culture might have it. It does not involve

becoming some kind of zombie, vegetable, self-absorbed narcissist, navel gazer, space cadet, cultist, devotee, mystic, or Eastern philosopher. (p. 3)

Since the 1980s and the advent of Kabat-Zinn's (1982) MBSR protocol (and due to its secular nature), mindfulness has been used to treat anxiety disorders, depression, and pain management (Ditrich, 2016). The secularization of mindfulness has also been instrumental in the integration of this practice into the secular K-12 education realm (Kabat-Zinn, 2005).

According to Lomas et al. (2017), the term "mindfulness" (p. 133) is used to refer to both: (a) a state of mind and (b) a form of meditation that helps one achieve such a state. The most widely cited definition of mindfulness stresses the importance of paying attention in the present moment, on purpose, and without judgment (Kabat-Zinn, 2013). Roeser et al. (2013) built upon this definition and stated that mindfulness involves:

Three interrelated mental skills and dispositions: (a) focusing attention intentionally on the here and now (rather than letting the mind wander into ruminating on the past or worrying about the future); (b) perceiving situations and engaging in actions with the clear light of conscious awareness (rather than doing so emotionally, automatically, and nonconsciously or mindlessly); and (c) experiencing each moment just as it is without biasing emotional reactions or mental judgments (e.g., expectations, wishes, or fears that may or may not be relevant to what is actually happening). (p. 789)

Lomas et al. (2017) and Roeser et al. (2013) include an attitude of warmhearted curiosity in their definition of mindfulness. This attitude is closely imbued with self-compassion, and according to Roeser et al. (2013), it involves "(a) mindful self-

awareness, (b) a suspension of self-judgment and criticism in favor of self-kindness and acceptance, and (c) an understanding of the universal nature of challenge, setbacks, and difficulty in human existence” (p. 789).

The second use of the term mindfulness addresses the forms of meditative practice that can result in a mindful state (Lomas et al., 2017). The most common forms of mindful states can be identified as featuring either “focused attention” or “open monitoring” processes (Lutz et al., 2008, p. 165). Focused attention has an individual sustaining their efforts toward a selected target, such as the breath, and preventing their focus from wandering (Lomas, et al., 2017). This focused attention has the individual constantly redirecting their attention back to their target of meditation while simply acknowledging, nonjudgmentally, any distraction (Lomas et al., 2017).

Open monitoring, in contrast to focused attention, refers to a meditative state that has an unrestricted field of awareness, with no pointed area of focus (Lomas et al., 2016). This type of mindfulness includes processes of “meta-awareness” (Lomas et al., 2017, p. 133) in which practitioners can reflect on the process of consciousness itself. Focused attention and open monitoring are not mutually exclusive. In practice, mindfulness meditation, according to Lomas et al. (2017),

Most often involves a combination of focused attention and open monitoring, since it usually begins with a period of focused attention on a target, such as breath, in order to focus awareness, followed by the more receptive state of open monitoring. (p. 133)

MBIs (Mindfulness-Based Interventions). There are a number of MBIs that have been studied including MBSR, koru, mindfulness-based cognitive therapy (MBCT),

mindfulness-based stress reduction therapy (MBSRT), community approach to learning mindfully (CALM), cultivating awareness and resilience in education (CARE), stress management and relaxation training (SMART), and mindful meditation (MM).

During the MBSR training, participants learn, over the course of eight weekly sessions, to use mindfulness techniques to deal with the stress present in their everyday lives (Kabat-Zinn, 2013). MBSR focuses on three formal meditation practices: sitting meditation, body scan, and mindful yoga (Kabat-Zinn, 2013). In sitting meditation, participants use breathing as their main focus of attentional awareness, while at the same time taking note of any other thought, feeling, or sound that they may be experiencing (Carmody & Baehr, 2007). During the body scan, participants focus, nonjudgmentally, on each different area of the body. Mindful yoga postures emphasizing gentle movements and stretching are also practiced to develop awareness and focused attention (Kabat-Zinn, 1994).

In addition to these formal lessons, participants mindfully note with purposeful awareness the sensations and feelings in their everyday activities (e.g., eating, walking, driving) (Kabat-Zinn, 1994). Participants are also given electronic files containing meditation instructions that can be streamed or played on portable devices. Daily “homework” practice lasting a minimum of 45 minutes is encouraged throughout the MBSR course (Kabat-Zinn, 2013).

Neurobiology of Mindfulness. A significant increase in the number of neuroscientific studies has emerged showing links between mindfulness practice and the brain’s morphology and neural circuitry (Holzel et al., 2011; Vago & Silbersweig, 2012).

Davidson and McEwen's (2012) work linked mindfulness practice with changes in specific areas of the brain involved in attention, empathy and prosocial emotions.

Mindfulness practice has also been shown to result in alterations in brain structure, referred to as neuroplasticity, notably the cerebral cortex, subcortical gray and white matter, brain stem, hippocampus, and amygdala (Tang et al., 2015). These structural changes in neural networks positively affect attentional control, emotional regulation, and self-awareness (Tang et al., 2015). It has been postulated that mindfulness increases activity in the parasympathetic nervous system which in turn inhibits the sympathetic nervous pathway from mediating the fight-or-flight stress response (Tang et al., 2015; Thayer and Lane, 2000). Xiong and Doraiswamy (2009) concluded that some forms of mindfulness meditation inhibit cortisol secretion, (and an increase in cortisol levels is a hallmark of the stress response). This decrease in cortisol levels leads to an increase in the amount of brain-derived neurotrophic factor (BDNF) found in the brain; BDNF is linked to neuroplasticity and changes in the amygdala and hippocampus that reduce fear-related and stress-induced memories (Tang et al., 2015; Xiong & Doraiswamy, 2009).

Holzel et al. (2010) studied changes in amygdala gray matter density brought about after completing a class in MBSR. Using magnetic resonance imagery (MRI) with 26 participants, Holzel et al. (2010) found that the participants reported significantly reduced stress following the intervention, and "this reduction in perceived stress correlated positively with decreases in right basolateral amygdala gray matter density" (p. 11).

The Holzel et al. (2010) findings are consistent with those from Creswell et al. (2007). Creswell (2007) found that those participants who self-reported high levels of mindfulness were associated with higher levels of prefrontal cortex activity and lower levels of amygdala responses. This suggests that the prefrontal cortex can inhibit the fear-based responses from the amygdala, which allows mindful individuals to better regulate their emotional responses (Creswell et al., 2007).

Holzel et al. (2011) identified four different neural components that help explain how mindfulness works. The first is attention regulation, which includes sustaining attention on the chosen object, typically the incoming and outgoing of breath (Holzel et al., 2011). When distracted, the subject would return attention to the object.

The second component is body awareness, which is the ability to notice subtle bodily sensations and how they may change as the person's attention may move from breath to sound to emotions. (Holzel et al., 2011, p. 541). The insula and temporoparietal junction are two brain regions involved in this component and could be linked to an improved empathetic and compassionate response to stress (Holzel et al., 2011; Singer et al., 2004). According to Holzel et al. (2011), these regions "are impacted both in awareness of one's own body sensations and in social cognition and empathetic responses" (p. 542).

Emotion regulation is the third of the four components identified by Holzel et al. (2011). This component comprises four parts: (a) reappraisal, which is approaching ongoing emotional reactions nonjudgmentally and with acceptance; (b) exposure to the emotion coming up during the experience; (c) extinction, which includes letting oneself be affected by the present experience, no matter how adverse, and noticing that it will

pass away; and (d) reconsolidation, which is the ultimate acceptance of the emotion, no matter how unpleasant (Holzel et al., 2011). Neuroimaging studies have shown that the brain regions (i.e., amygdala, hippocampus, and prefrontal cortex) involved in fear extinction are also the primary regions affected by mindfulness (Davidson & McEwen, 2012; Holzel et al., 2010, 2011). The Holzel et al. (2011) findings suggest that “mindfulness meditation could directly influence one’s capacity to extinguish conditioned fear by enhancing the structural and functional integrity of the brain network involved in safety signaling” (p. 547). In other words, the extinction of fear and its associated thoughts may help explain how mindfulness can result in benefits for the individual (Baer, 2003; Brown et al., 2007; Holzel et al., 2011).

Limitations of Burnout Theory and Neurobiology of Stress and Mindfulness

Maslach (2017) cautioned that because burnout has been defined primarily in terms of an individual’s experience (exhaustion, cynicism, inefficacy), research for solutions has been framed by the question, “What can we do to help the person?” (p. 145). This mindset presumes the problem of burnout is centered mainly within the employee, and it is not an indication of problems with the workplace environment; but perhaps burnout should be reframed as a workplace hazard with solutions anchored around job safety improvement within the infrastructure of an organization (Maslach, 2017).

The person-centered psychological definition of burnout can also lead to reliance only on individual interventions, and there may very well be “a stigma that burnout indicates weakness, incompetence, or mental illness” (Maslach, 2017, p. 146). This stigma can lead to employees remaining silent because they feel as if the burnout problem

is theirs and theirs alone (Maslach, 2017). It is important to reflect on the workplace environment and to pay attention to fixing the job as well as the person. Maslach (2017) stated,

This is not to say that individual interventions are not useful—they certainly can be. But they are not the only way to think about the burnout experience, given that the person is behaving within, and responding to, a larger environmental context. (p. 147)

Maslach (2017) also suggested that organizational interventions can be more productive than individual interventions because such organizational changes affect a considerable number of employees. Organization interventions can begin to change how an organization works, and, ultimately, the climate and culture will also change, which then helps improve the overall well-being of the individuals (Maslach, 2017).

In terms of mindfulness, there is a caution that the writings in the popular media since 2010 have been overemphasizing the benefits of MBIs while underdelivering on the science behind such claims (Gibbs, 2016; Gunderson, 2016; Van Dam et al., 2017). These exaggerated claims may have “opportunity costs” in that they divert individuals from pursuing more traditional activities, such as aerobic exercise, which could result in more effective physical and mental benefits (Cotman et al., 2007; Van Dam et al., 2017). The claims can also prevent individuals from seeking out psychotherapy and pharmacotherapy treatments that are better suited for their psychiatric conditions (Van Dam et al., 2017). Strauss et al. (2014) wrote that “given the paucity of evidence in their favour, we could caution against offering MBIs as a first line intervention for people experiencing a primary anxiety disorder” (p. 334). Individuals suffering from anxiety

may spend an inordinate amount of time and money seeking a mindfulness-based solution to their challenges while foregoing the time and money that could be invested in a more effective intervention (Van Dam et al., 2017).

Problem Statement

Burnout, stress, and turnover are areas of significant concern for educators, with nearly one-half of teachers leaving their classrooms within the first few years of employment (Ingersoll, 2001). The daily stresses within classrooms are comparable to those that emergency department physicians experience (Jennings, 2018). The effects of burnout, stress, and turnover not only have physical, emotional, and mental ramifications for educators, but they also have ramifications for the educators' students, colleagues, and organizations, resulting in decreased levels of student engagement and achievement, collegiality within school buildings, and increased health and human resource costs (Jennings et al., 2013; Roeser et al., 2013).

Stress in the form of disruptive student behavior, time demands, and overall workload, can impact an educator's ability to be responsive and effective, and stress can lead to areas of worklife mismatch and eventually to burnout (Flook et al., 2013; Maslach et al., 2001). Abenavoli et al. (2013) posited that the personal, societal, and financial costs associated with educator stress, burnout, and turnover are too high to ignore, and the researchers suggested that it is imperative to identify accessible and effective ways to help teachers manage stress and anxiety (Abenavoli et al., 2013). MBIs, through their neurobiological effects, may be one such resource.

This study examined the effects of one specific MBI, namely MBSR, on educator stress, well-being, and each of the three dimensions of burnout (exhaustion, cynicism,

and inefficacy). A total of 44 educators participated in this study with 22 of them enrolled in an 8-week MBSR intervention that was delivered via a 100% virtual platform. Pre- and post-intervention assessments were collected from each participant using validated scales that measured the participants' overall well-being, stress, and components of burnout.

Research Questions

A randomized controlled trial was conducted to compare the effectiveness of the MBSR intervention regarding symptoms and traits measured by each of the scales. Two research questions were examined through this analysis:

1. Will an MBSR intervention affect the degree and intensity of burnout symptoms (i.e., exhaustion, cynicism, and inefficacy) experienced by educators?
2. What is the impact of an MBSR intervention on the overall well-being and stress in educators?

Significance of Study

Stress, anxiety and burnout among K-12 educators is a significant concern. The levels of stress have been compared to those seen among emergency department health care professionals, while the current costs associated with turnover among educators may exceed \$8 billion (Carrol, 2007; Jennings, 2018). Chronic stressors faced by K-12 educators can lead to a sense of mismatch between professional responsibilities and one's personal life. This mismatch can then result in the three telltale components of burnout: emotional exhaustion, cynicism, and professional inefficacy (Maslach & Leiter, 2016). This study identifies one specific mindfulness-based intervention, MBSR, that can help K-12 educators manage stress and anxiety and reduce the onset of burnout. The

implications of such an intervention cascade beyond the individual educator and can have positive effects on the individual's colleagues, and students.

Chapter Summary

In conclusion, while teaching is a profession fraught with stress, burnout, and turnover, it may be possible to ameliorate these effects at the individual level with mindfulness-based interventions such as MBSR. Mindfulness practice has been shown to alter neural networks and brain morphology as well as to positively affect attentional control, emotional regulation, and self-awareness (Tang et al., 2015). These neurobiological changes, facilitated by MBIs, may ultimately help reduce the stress, burnout, and turnover that seems endemic in teaching—no matter the level of experience attained by the educator. Chapter 2 reviews the literature around mindfulness-based interventions, while Chapter 3 describes the methodology for this study. Chapter 4 details the results of this research, and finally Chapter 5 discusses the implications of the findings as well as policy and future research recommendations.

Chapter 2: Review of the Literature

Introduction and Purpose

Stress, burnout, and turnover are critical issues within the K-12 educational setting, and the implications affect the individual educator as well as their colleagues and students. It is imperative that effective interventions be identified that can help ameliorate the effects of stress, anxiety, and burnout. Mindfulness-based interventions (MBIs), and specifically MBSR, may provide such an avenue for dampening each of those health-related concerns. This chapter provides an analysis of the current state of research of possible interventions for teacher stress and burnout, and substantial gaps within the research. Many MBIs have been studied: MBSR, koru, mindfulness-based cognitive therapy (MBCT), mindfulness-based stress reduction therapy (MBSRT), community approach to learning mindfully (CALM), cultivating awareness and resilience in education (CARE), stress management and relaxation training (SMART), and mindful meditation (MM).

CARE (Cultivating Awareness and Resilience in Education)

One of the very first studies that incorporated any type of mindfulness intervention into the educational field was done by Jennings and Greenberg (2009) as they developed the prosocial classroom model. This model highlights the importance of educators' social and emotional competence (SEC) to create a nurturing and supportive classroom climate, which can then lead to improved student achievement, both academically and social-emotionally (Jennings, 2011; Jennings & Greenberg, 2009).

Jennings's (2011) impetus for her research was grounded in conclusions from the research of Marzano et al. (2003) that states, "When teachers cannot manage the social and emotional pressure of teaching, the classroom climate deteriorates and their students demonstrate lower levels of performance" (Jennings, 2011, p. 1). At this point, emotional exhaustion may begin, and the burnout cascade commences (Jennings, 2011; Jennings & Greenberg, 2009). This then leads to negative and punitive responses from teachers that result in further deterioration of classroom climate and student-teacher connection, and ultimately lead to the other two components of burnout—depersonalization and inefficacy (Jennings, 2011; Maslach & Leiter, 2016).

Jennings (2011) stated as teachers recognize their role and effect upon students' emotions and behaviors, they can begin to create a classroom climate that is anchored in trust and respect which, ultimately, helps the teacher meet the needs of their students. A teacher's ability to show empathy and concern, as well as classroom management strategies that are more proactive and democratic, helps to promote student autonomy and intrinsic motivation; this approach is more effective at controlling negative behaviors when compared to reactive, punitive measures (Jennings, 2011). The degree of SEC required to ensure the success of the prosocial classroom requires training in active listening, developing a compassionate approach to personal interaction, emotional awareness, and stress-reduction. Each of these three components can be attained through MBIs (Jennings, 2011; Jennings et al., 2013).

One such intervention was used by Jennings et al. (2013) as they incorporated the CARE program into a professional development offering meant to help teachers improve their classroom performance and climate as well as reduce their daily stress (Jennings et

al., 2013). CARE utilizes instruction in mindfulness and basic breath meditation and open awareness (Jennings et al., 2013). This approach also includes loving-kindness and compassion meditations and reflections that promoted a sense of presence in the classroom as well as gratitude and compassion for self and others (Jennings et al., 2013).

The Relationship of Mindfulness and MBSR on Burnout, Stress, and Well-Being

Studies examining the relationship and mediating effects of mindfulness and MBIs on burnout, stress, and overall well-being have dramatically increased in the past 10 years (Klingbeil & Renshaw, 2018). Most of these studies, however, do not include educators or the specific intervention of MBSR. For example, the Khoury et al. (2013) meta-analysis of 209 studies did not include any that specifically targeted educators. When teachers are targeted, however, the intervention studied does not tend to be MBSR. Janssen et al. (2018) and Klingbeil and Renshaw (2018) published systematic reviews and meta-analysis, respectively. These included a total of 52 separate studies, and only nine of these examined the effects of MBSR on the mental health of educators.

This dearth of MBSR within the education field is even more remarkable when one takes into consideration the meta-analysis from Slemp et al. (2019). Of the 771 studies reviewed in the study, only 45 focused on the education field, and none of them had MBSR as the specific intervention (Slemp et al., 2019). There were 47 studies that included MBSR as the primary MBI, but nearly all of them had health care and mental health employees as their participants (Slemp et al., 2019); therefore, there is a need to study the effects of MBSR specifically with educators.

Studies Outside of the Educational Setting

MBI research has typically focused on the benefits of mindfulness in the clinical setting, including patients suffering from chronic pain, anxiety, eating and major depressive disorders, among others (Janssen et al., 2018). Janssen et al. (2018) found that mindfulness can help those individuals suffering from symptoms of anxiety and depression and can lead to increased levels of concentration and resilience. The Khoury et al. (2013) meta-analysis included 209 studies and 12,145 participants. The researchers concluded that MBCT was moderately effective in pre- and post comparisons ($n = 72$; Hedge's $g = .55$), in comparison with waitlist controls ($n = 67$, Hedge's $g = .53$), and when compared with other active treatments ($n = 68$; Hedge's $g = .33$), including psychological treatments ($n = 35$; Hedge's $g = .22$). This meta-analysis prompted Khoury et al. (2013) to conclude that MBCTs can help reduce anxiety, depression, and stress (Khoury et al., 2013). Mindfulness leads to psychological and physiological improvements in a variety of clinical areas such as “pain, body image, activity levels, medical symptoms, mood affect, somatization, anxiety, depression, and self-esteem” (Gold et al., 2010, p. 185). It may work through the alteration of a person's perception and reactivity to negative encounters and events while at the same time helping that individual become more cognizant and sensitive to positive experiences (Gold et al., 2010; Kabat-Zinn, 1982, 2013).

The use of MBSR and other MBIs have now been expanded beyond the clinical setting based on the promising results seen with patients. MBSR and other MBIs have recently been studied with healthy populations including employees and managers in manufacturing, healthcare settings, and within public and private sectors that emphasize

high levels of customer contact (e.g., retail and customer service) (Chiesa & Serretti, 2009; Irving et al., 2009; Janssen et al., 2018).

The Huang et al. (2015) randomized controlled MBSR study of 144 employees of manufacturing factories in China showed significant reductions in a variety of measures. Statistically significant decreases in psychological distress were observed in the intervention group, compared to the control group, immediately after the intervention and 2 weeks after the intervention, and the positive effects in the treatment group remained at 4 and 8 weeks after the intervention (Huang et al., 2015). Reductions in prolonged fatigue and perceived stress were also observed, and these changes were still noted at 4 and 8 weeks after the intervention (Huang et al., 2015). Lastly, significant increases in job control and decreases in job demands were observed between the treatment and the control groups at 2 weeks after the intervention, but only job demands showed a significant difference at 8 weeks after the intervention (Huang et al., 2015). These results suggest that MBSR may be an intervention that can be applied outside of the manufacturing realm, perhaps to educators, in order to reduce strain, fatigue, and distress. In theory, these reductions might then lead to reduced levels of burnout among educators.

The second study of note had Duchemin et al. (2015) using a modified MBSR program with shortened weekly sessions and in-home exercises, with medical and surgical personnel. This randomized, controlled trial with a control group showed statistically significant decreases in the Depression Anxiety Stress Scale (DASS) among those individuals selected to be in the treatment group (Duchemin et al., 2015). There were no significant changes in the pre- and post-intervention measures from the Maslach

Burnout Inventory nor the Professional Quality of Life Scale, and this lack of change was not noted in any other reviewed study (Duchemin et al., 2015).

While Duchemin et al. (2015) used a shortened version of MBSR, Amutio et al. (2015) implemented an extended MBSR program with the addition of one 2.5-hour session per month for 10 months after the initial treatment was concluded. The results of this randomized controlled study of actively employed physicians ($N = 42$), with a control group, showed significant increases in mindfulness in the treatment group compared to the control group after the intervention, and the treatment group also showed significant improvement in this measure at 10 months post-intervention) (Amutio et al., 2015). The control group was not measured at 2 weeks post-intervention.

One last study of note involving health care professions was conducted by Pipe et al. (2009). It was a randomized control trial (RCT) with a control group that included 33 nursing leaders from a health care system. Results from this study showed significant increases in mindfulness in the treatment group compared to the control group post-intervention, but this difference dissipated at 12 months post-intervention (Pipe et al., 2009). The researchers also found a significant reduction between pre- and post-intervention in psychological distress (stress, anxiety, and mood) in the treatment group. There was no reduction in the control group (Pipe et al., 2009). There was also a significant improvement in the Positive Symptom Distress Index, assessing symptom intensity, and the Global Severity Index, assessing overall psychological distress, in the treatment group compared to the control group (Pipe et al., 2009).

Three studies specifically examined the effects of MBSR on the dimensions of burnout (emotional exhaustion, depersonalization, and self-efficacy). First, Cohen-Katz et

al. (2005) designed a randomized controlled study that involved nursing, social work, respiratory therapy, and pastoral care. A traditional MBSR protocol was used, which is eight weekly 2.5-hour sessions, daily home practice, and a day-long, weekend-day retreat, and the Maslach Burnout Inventory and Brief Symptom Inventory were utilized as scales. Although no significant results were found with the Brief Symptom Inventory, a significant reduction of emotional exhaustion, as measured by the Maslach Burnout Inventory, was observed with the treatment group when compared to the control group (Cohen-Katz et al., 2005). Also, levels of emotional exhaustion within the treatment group fell from baseline to post class as well as from baseline to 3-month post-intervention. Results from the Maslach Burnout Inventory also showed a decrease in levels of depersonalization and significantly higher levels of personal accomplishment (efficacy) for the treatment group, compared to the control group (Cohen-Katz et al., 2005).

The second study of MBSR and burnout was a quasi-randomized controlled study involving 68 primary health care professionals (physicians, nurses, and psychologists) (Martin-Asuero et al., 2014). A traditional MBSR program was used, and a significant reduction of emotional exhaustion and depersonalization was seen with the Maslach Burnout Inventory as well as an increase in personal accomplishment. The Five-Factor Mindfulness Questionnaire (FFMQ) was also used, and significant increases in overall mindfulness within the treatment group from pre- to post-intervention was observed (Martin-Asuero et al., 2014).

The third MBSR burnout study was an experimental field proposal by Hulsheger et al. (2013), and it revealed that a self-training mindfulness intervention can buffer the

effects of burnout among health and human services professionals. This study randomly assigned health and human services professionals ($N = 64$) to an intervention group or a control group. An increase in job satisfaction along with decreased levels of emotional exhaustion was experienced by participants in the mindfulness intervention group when compared to the control group (Hulsheger et al., 2013).

In summary, the results from Cohen-Katz et al. (2005), Hulsheger et al. (2013), and Martin-Asuero et al. (2014) all show that MBSR can be an effective intervention that can dampen the level of each of the three burnout components. Each study showed a decrease in levels of emotional exhaustion and depersonalization for those participants receiving MBSR training. Also, levels of professional inefficacy were reduced in the treatment group for all three studies as well (Cohen-Katz et al., 2005; Hulsheger et al., 2013; Martin-Asuero et al., 2014).

MBSR has been used as an effective mindfulness intervention not only in the clinical setting, with patients suffering from physical and mental challenges (Kabat-Zinn, 2013), but it has also been studied in several occupational fields. There is ample evidence that MBSR may decrease levels of each of the dimensions of burnout as well as accentuate levels of well-being, personal accomplishment, and job satisfaction. Many of the employment fields that MBSR has been used in have one thing in common—they incorporate the concept of human services and face-to-face contact with the public (clients, patients, and the general public) (Cohen-Katz et al., 2005; Hulsheger et al., 2013; Lomas et al., 2017; Martin-Asuero et al., 2014). Educators certainly would fall within this category, and although the number of mindfulness studies within this field pales in comparison to those described above, there are intriguing findings over the past few years

that begin to paint a picture that includes teachers, stress, burnout, and effective MBIs (Khoury et al., 2013, Klingbeil & Renshaw, 2018, Slemp et al., 2019).

Studies Within the Educational Field

One of the very first studies that incorporated any type of mindfulness intervention into the educational field was done by Jennings and Greenberg (2009) as they developed the prosocial classroom model. This model highlights the importance of an educator's SEC and their ability to nurture a supportive and respectful classroom culture; it is this type of culture that helps a student succeed socially, emotionally and academically (Jennings, 2011; Jennings & Greenberg, 2009). Jennings's (2011) impetus for her research was grounded in conclusions from the research of Marzano et al. (2003) that stated, "When teachers cannot manage the social and emotional pressure of teaching, the classroom climate deteriorates and their students demonstrate lower levels of performance" (Jennings, 2011, p. 1). As the teachers enter the burnout cycle, they become emotionally exhausted dealing with challenging student behaviors (Jennings, 2011; Jennings & Greenberg, 2009). As the teacher becomes more punitive and more reactive, the other two components of burnout, namely depersonalization and inefficacy, become apparent (Jennings, 2011; Maslach & Leiter, 2016).

Jennings (2011) stated that a teacher's ability to show empathy and concern, as well as classroom management strategies that are more proactive and democratic, helps to promote student autonomy and intrinsic motivation; and this is a much more effective approach to student discipline than using punitive measures (Jennings, 2011). The degree of SEC required to ensure the success of the prosocial classroom requires training in

emotional awareness, active listening, and compassion, and each of these three components can be attained through MBIs (Jennings, 2011; Jennings et al., 2013).

One such intervention was used by Jennings et al. (2013) as they incorporated the CARE program into a professional development offering meant to help teachers improve their classroom performance and climate as well as to reduce their daily stress (Jennings et al., 2013). CARE utilizes instruction in mindfulness and basic breath meditation and open awareness (Jennings et al., 2013). This approach also includes loving-kindness and compassion meditations and reflections that promoted a sense of presence in the classroom as well as gratitude and compassion for self and others (Jennings et al., 2013). Each component of CARE (breath meditation, open awareness, mindful attitude, compassion meditation) is also found in MBSR interventions (Kabat-Zinn, 2013).

The results from the Jennings et al. (2013) randomized control study involving 53 participants suggested that CARE, and its mindful approach, resulted in an increase in a teacher's mindfulness, well-being and resilience to inefficacy and burnout (Jennings et al., 2013). The teachers in the CARE intervention group showed a significant increase (Cohen's $d = .80$) in the ability to reappraise a stressful situation as measured by the Emotion Regulation Questionnaire. This reappraisal leads to successful self-regulation of emotions which can aid teachers in the regulation of emotional reactivity in provocative situations (Gross, 2002; Jennings et al., 2013).

Significant positive effects were also seen within the CARE treatment group with the observing and non-reacting subscales of the FFMQ, and there was evidence that CARE also reduced rumination, meaning that teachers were able to "let go" of stressful interactions and experiences, which can result in reduced levels of exhaustion and

inefficacy (Jennings et al., 2013). Lastly, results showed the CARE intervention helped to improve a teacher's overall well-being, sense of efficacy, student-teacher relationships, and classroom management and climate—all of which helped to decrease the level of burnout (Jennings et al., 2013).

Both the Jennings (2011) and Jennings et al. (2013) studies implied that greater self-awareness and self-regulation may have a buffering effect on the degree of burnout among educators. Hulsheger et al. (2013) also noted a buffering phenomenon that may extend to educators. In essence, mindfulness may help an educator facilitate proactive (rather than reactive) classroom management strategies and healthy teacher-student relationships. Abenavoli et al. (2013) had 64 educators complete self-reported measures of mindfulness, burnout, and well-being, among others. The Abenavoli et al. study did not include any MBI but rather focused on existing levels of mindfulness in educators.

Results of cross-sectional analyses indicated that the level of the educators' mindfulness (as measured by the FFMQ) had an inverse relationship with reported levels of the three components of burnout: emotional exhaustion, depersonalization, and inefficacy (Abenavoli et al., 2013). The Abenavoli et al. study also states that mindful educators may be more in tune with the needs of their students, be those needs academic, social, or emotional (Abenavoli et al., 2013). Similar to the results seen in Jennings et al. (2013), Abenavoli et al. (2013) concluded that by preventing a “burnout cascade” (p. 68) of deteriorating classroom climate, student misbehavior, emotional exhaustion, and callousness, having a mindful attitude may promote positive outcomes for both educators and their students (Abenavoli et al., 2013). The Abenavoli et al. (2013) study results, again, aligned with studies conducted by Jennings et al. (2011) as both groups concluded

that hard-working, ambitious educators, who also exhibit greater resilience and emotional regulation, experience less burnout than ambitious educators who do not possess these skills.

While Abenavoli et al. (2013) did not use any type of MBI, two research teams, Flook et al. (2013) and Roesser et al. (2013), did specifically use MBSR as an intervention for stress and burnout. Flook et al. (2013) conducted a randomized controlled pilot trial of a modified MBSR course adapted specifically for teachers. The curriculum was modified to include the integration of classroom management and instructional skills, and the 18 participants were given permission to vary the length of their length of home practice from 12 to 45 minutes (Flook et al., 2013). Flook et al. concluded that mindfulness helps to manage stress by giving the individual a coping strategy that targets one's perception of a stressful situation. "Mindfulness does not directly act on the target of stress, although a shift in perception, [referred to as re-perceiving] and response to stressors can conceivably alter the nature of the stressor itself" (Flook et al., 2013, p. 185).

Flook et al. (2013) incorporated three unique data-collection procedures that other mindfulness studies did not use. The first distinction is that informal practices were specifically designed for the school environments; these activities served to "bridge practice into the work setting through interactions with students, parents, and colleagues" (Flook et al., 2013, p. 192). The second unique component of the study was the use of classroom observation by experienced trainers to assess the congruency of a participant's self-report to actual classroom behaviors. Lastly, saliva samples were collected over three consecutive working days to measure cortisol levels, a neurochemical directly associated

with the stress response. Elevated cortisol levels indicate elevated stress levels (Flook et al., 2013).

Flook et al. (2013) concluded that a mindfulness intervention adapted for educators “boosts aspects of teachers’ mindfulness and self-compassion, reduces psychological symptoms and burnout, increases effective teaching behavior, and reduces attentional biases” (p. 189). Cohen’s d values also supported this conclusion, as a “between-group effect larger than $d = .23$ was found for 12 (out of 16) of the outcome variables, suggesting potential for a mindfulness-based intervention to promote meaningful psychological and behavioral changes in elementary school teachers” (Flook, et al., 2013, p. 189). These effects were seen with self-report measures and with the objective measures of behavioral tasks, cortisol levels, and observer-rated behavior of the teacher (Flook et al., 2013).

The Flook et al. (2013) study results suggest giving teachers ways to effectively manage and reduce their stress can improve their well-being and classroom performance. Flook et al. (2013) also stated that this improved state of being is “in turn . . . likely to have a positive impact on students’ well-being and learning, for example, via the teacher-student relationship and classroom climate” (p. 190). They concluded by stating,

Considering that these changes were observed in teachers after a relatively brief period (8 weeks of training), such training presents a cost-effective investment model for schools given the costs associated with teacher burnout and consequent repercussions for student academic performance. (Flook et al., 2013, p. 190)

The Flook et al. (2013) conclusions around the mechanisms of mindfulness align with conclusions drawn by Shapiro et al. (2006). Shapiro et al. (2006) built upon Kabat-

Zinn's (1982) definition of mindfulness by including a concept referred to as "reperceiving." Mindfulness generates a "fundamental shift in perspective" (Shapiro et al., 2006, p. 377) in which "rather than being immersed in the personal drama or narrative of our life story, we are able to stand back and witness it" (p. 377). People learn how to view life's daily events and challenge with a sense of dispassion and disconnectedness; this prevents one from ruminating on all of the associated internal feelings and sensations that the person would typically become attached to (Bishop et al., 2004, Lomas et al., 2017). This new-found awareness is especially salient for educators as they deal with misbehaving students, and perhaps their misbehaving parents, as well as challenging behaviors from colleagues and administrators.

The challenges described by Bishop et al. (2004), Lomas et al., 2017, and Shapiro et al. (2006) can be significant, and without resources to deal with such obstacles, an educator is at an increased risk of burnout. The Roeser et al. (2013) research was based on a premise that mindfulness training helps teachers act with more mindfulness and self-compassion allowing them to become more resilient to the challenges within the classroom. Roeser et al. (2013) stated, "teacher stress and burnout can undermine teacher health and well-being. In turn, teacher health problems can increase district health care and human resource costs associated with teacher illness, absenteeism, and distance from the profession" (p. 789). Their work, in line with that seen with Jennings, et al. (2011) also concluded that teacher stress and burnout may adversely affect student learning (Roeser et al., 2013).

The premise set forth by Roeser et al. (2013) in two randomized, wait-list control field trials involving 113 educators was that teachers conserve physical and mental

energies through more effective coping and increased levels of resilience. This conservation of energy can then be used to inspire, motivate, and manage student learning and behavior. Roeser et al. (2013) also stated,

By assisting teachers in developing the kinds of self-regulatory strategies and qualities of awareness that are critical for stress management and effective teaching, teachers become role models for the kinds of skills and mind-sets that students in the 21st century also need to be successful in school and life. (p. 788)

Roeser et al. (2013) confirmed the conclusions of Greenberg et al. (2010) that mindfulness training can positively impact educators which in turn will have benefits for their students and their learning.

The Roeser et al. (2013) type of mindfulness training session, anchored in the MBSR tradition, met after school and was primarily experiential. It incorporated five main teaching activities: “guided mindfulness and yoga practices, group discussions of mindfulness practice, small-group activities to practice skills in real-life scenarios, lecture and guided home practices, and homework assignments” (Roeser et al., 2013, p. 790). Each of the activities and assignments were meant to provide the 113 participants with “opportunities to learn mindfulness and compassion for themselves and others and to learn how to use these resources in the service of coping better with the stressful aspects of their jobs” (Roeser et al., 2013, p. 790).

Results from the Roeser et al. (2013) study show that teachers in the mindfulness training group, when compared to the control group, reported greater mindfulness at the post-program point (Cohen’s $d = .79$) and at the follow-up session, 3 months later (Cohen’s $d = .87$) (Roeser et al., 2013). This increase in levels of mindfulness included

“greater awareness of sensations, feelings, and thoughts; less judgment and reactivity; and greater awareness of one’s actions and reasons for action” (Cohen’s $d = .85$ post-program and $.62$ at the 3-month follow up) (Roeser et al., 2013, p. 799). Teachers in the intervention group also reported significant declines in:

- occupational stress with Cohen’s $d = -.57$ post-program and $-.73$ at the 3-month follow up,
- symptoms of burnout with Cohen’s $d = -.76$ post-program and $-.68$ at the 3-month follow up,
- anxiety with Cohen’s $d = -.71$ post-program and -1.10 at the 3-month follow up, and
- depression with Cohen’s $d = -1.06$ post-program and -1.56 at the 3-month follow up. (Roeser et al., 2013).

Of note is the decline in stress, anxiety, and depression were even more pronounced, as measured by Cohen’s d , 3 months later at the follow-up session when compared to immediately after the mindfulness program.

Despite these positive findings, and in contrast to those findings from Flook et al. (2013), there were no statistically significant differences in blood pressure, resting heart rate, and cortisol levels (Roeser et al., 2013). Therefore, although the teachers in this study self-reported feeling less stressed out, anxious, depressed, exhausted, and burned out, the biological indicators of their hypothalamic-pituitary-adrenal axis did not confirm such reports (Roeser et al., 2013). In summary, Roeser et al. (2013) surmised that,

By helping teachers to develop self-regulatory resources to meet the cognitive, social, and emotional demands of teaching, mindfulness training also may help

teachers to conserve precious motivational and self-regulatory resources for investment in relationships with students and classroom teaching rather than coping and defense. (p. 802)

Is burnout among educators a phenomenon limited to only teachers in the United States? Can MBSR be used as an intervention in other countries that may face this same job-related challenge? Gouda et al. (2016) extended the Flook et al. (2013) and Roeser et al. (2013) studies to teachers in Germany. The Gouda et al. (2016) study noted that, similar to educators in other developed countries, German teachers also suffer from serious stress-related health issues including stress, emotional exhaustion, inefficacy, and burnout.

German teachers reported the main job stressors that they face included confrontation with students, threatening interactions with various parents, and relationships with colleagues that could be described as cold and even hostile (Gouda et al., 2016). If those same stressors, however, could be perceived positively, then teachers could emotionally connect with even the most challenging of students (and their parents) and tap into a sense of collaboration and inspiration from their colleagues (Gouda et al., 2016). Gouda et al. (2016) used MBSR as the intervention to ultimately change such perceptions.

The Gouda et al. (2016) study applied a controlled wait-list design with three measurement points (pre- and post-intervention as well as at a 4-month follow-up session) (Gouda et al., 2016). Teachers in the intervention group self-reported higher levels of mindfulness along with reduced interpersonal problems (Cohen's $d = .66$ and $.49$, respectively), with medium effect sizes on anxiety and emotion regulation (Cohen's

$d = .46$ and $.55$, respectively) (Gouda et al., 2016). The Gouda et al. (2016) research team noted that the increases in self-reported mindfulness are of “particular value to the teaching profession, since mindfulness among teachers has shown to contribute to improvements in teaching practices, and student-teacher relations, as well as a more constructive classroom climate” (p. 12). Gouda’s findings support those of Flook et al. (2013), Jennings (2011), and Greenberg (2016).

Lastly, Gouda et al. (2016) linked their research to the concept of surface acting and emotional labor. Specifically, they reaffirmed that teaching is an occupation fraught with high levels of emotional labor, which they associated with surface acting (Gouda et al., 2016). They stated that “Teachers often feel compelled to manage negative emotions such as anger, frustration, or insecurity, such that they don’t manifest visibly or directly shape social interactions” (Gouda et al., 2016, p. 12). Emotional labor is an antecedent to emotional exhaustion, and it is this exhaustion which then begins the burnout cascade (Maslach & Leiter, 2016). Gouda et al. (2016) offered mindfulness as an alternative approach that can offer teachers a different attitude to negative emotions that seem to invariably arise in their classrooms. The teachers may then recognize and accept any complex and negative emotions, allowing such emotions “to arise and then pass, without feeling the compulsion to act or react to them immediately” (Gouda et al., 2016, p. 12).

Methodological Review

The mindfulness studies included in this review were experimental, and they focused largely on healthy populations of adults in the health care industry or the retail and customer service sectors (Amutio et al., 2015; Chiesa & Serretti, 2009; Cohen-Katz et al., 2005; Duchemin et al., 2015; Huang et al., 2015; Hulsheger et al., 2013; Irving et

al., 2009; Janssen et al., 2018; Martin-Asuero et al., 2014; Pipe et al., 2009). Some of the studies also included educators as their participants of focus (Abenavoli et al., 2013; Brown, 2017; Gouda et al., 2016; Jennings & Greenberg, 2009; Lomas et al., 2016; Roeser et al., 2013; Shapiro et al., 2006; Tarrasch, 2019).

Many of the mindfulness studies reviewed were not randomized and/or did not have control groups. Instead, these studies typically were pre- and post-analyses (Amutio et al., 2015; Brown, 2017; Chiesa & Serretti, 2009; Cohen-Katz et al., 2005; Duchemin et al., 2015; Gouda et al., 2016; Huang et al., 2015; Hulsheger et al., 2013; Irving et al., 2009; Janssen et al., 2018; Jennings & Greenberg, 2009; Lomas et al., 2016; Martin-Asuero et al., 2014; Pipe et al., 2009; Shapiro et al., 2006). These same studies also tended to include 15-30 participants, although the Roeser et al. (2013) two field trials, involving educators, had 65 teachers each (this was the largest of the studies reviewed).

The studies in this review included some type of MBI and pre- and post-assessments that were collected using validating measures that are described in detail in Chapter 3. Very few of the studies included a follow-up assessment of more than 4 weeks after the intervention was completed.

Burnout research has focused on business, administrative services, retail, and health care (Leiter et al., 2016; Maslach & Leiter, 2008, 2016). These studies used either survey data collected as part of the employees' annual evaluation (Maslach & Leiter, 2008) or validated scales (e.g., Maslach Burnout Inventory) that were completed by employees. The number of participants is considerably larger than that seen with mindfulness studies including 600 to 2,000 employees (Guidetti et al., 2019, Maslach & Leiter, 2008, 2016).

Substantive Gaps

Studies over the past decade that examine the relationship and mediating effects of mindfulness and MBIs on burnout, stress, and overall well-being have increased (Klingbeil & Renshaw, 2018). Most of these studies, however, do not include K-12 educators or the specific intervention of MBSR. An interesting dichotomy exists. When teachers are the primary subjects of a research study, the intervention studied does not tend to be MBSR; and when MBSR is the mode of intervention, the respondents are very rarely educators. A significant gap exists in the current body of research that calls for a meld of K-12 teachers and MBSR as the assigned MBI.

Another gap exists in terms of the types of trials that past studies have employed. The vast majority of published results come from studies that are not randomized or do not use a control group (Khoury et al., 2013, Klingbeil & Renshaw, 2018, Slemp et al., 2019). Also, most studies that do employ MBSR as their intervention have modified the traditional MBSR course and curriculum because of time demands or the course instructor's level of expertise (Duchemin et al., 2015; Flook et al., 2013; Khoury et al., 2013; Klingbeil & Renshaw, 2018; Roeser et al., 2013; Slemp et al., 2019).

Summary

In summary, stress, burnout, and turnover are critical issues within the K-12 educational setting. MBIs, and specifically MBSR, may provide an avenue for dampening each of those health-related concerns. This chapter provided an analysis of the current state of research of possible interventions for teacher stress and burnout. Also, substantial gaps within the research were identified: MBSR is not often studied, especially when using a randomized controlled trial method, and even when MBSR is the

chosen intervention, educators are not the population used in such a study. Two research questions will be examined using methodology described in Chapter 3:

1. Will an MBSR intervention affect the degree and intensity of burnout symptoms (i.e., exhaustion, cynicism, and inefficacy) experienced by educators?
2. What is the impact of an MBSR intervention on the overall well-being and stress in educators?

Chapter 3: Research Design Methodology

Introduction

Burnout, stress, and turnover are endemic within the professional lives of K-12 educators, which Jennings (2018) compared to emergency department physicians. The effects of burnout, stress, and turnover have physical, emotional, and mental ramifications for the educator, their students, colleagues, and organizations. The effects result in increased health and human resource costs as well as decreased levels of student engagement and achievement (Jennings et al., 2013; Roeser et al., 2013). The costs associated with educator stress, burnout, and turnover make it important to identify resources to improve K-12 educators' ability to manage stress and their sense of accomplishment (Abenavoli et al., 2013). MBSR, a specific type of MBI, has been shown to reduce stress and anxiety and improve well-being in many clinical, retail, and manufacturing settings, but very few studies have been completed within the K-12 setting.

This study examined the effects of MBSR on educator stress, well-being, and each of the three dimensions of burnout: exhaustion, cynicism, and inefficacy. Educators were invited to participate in an 8-week MBSR intervention. Pre- and post-intervention assessments were collected from each participant, as well as from a control group of educators who were not enrolled in the course. The assessments relied upon five validated scales that measured overall well-being, stress, and components of burnout. A quantitative analysis was conducted to compare the effectiveness of MBSR regarding

symptoms and traits measured by each of the scales. Two research questions were examined through this analysis:

1. Will an MBSR intervention affect the degree and intensity of burnout symptoms (i.e., exhaustion, cynicism, and inefficacy) experienced by educators?
2. What is the impact of an MBSR intervention on the overall well-being and stress in educators?

Research Design

Inclusion and Exclusion

The participants for this study were K-12 educators, certified to teach in New York State, and, at the time of the study, they were actively employed in public school districts in the Finger Lakes region of New York State. Inclusion extended to administrators, classroom teachers, special education teachers, school counselors, and psychologists, as well as all related service providers such as speech and language therapists, literacy teachers, occupational therapists, and physical therapists. The levels of experience ranged from first-year teachers to those who had over 30 years of class experience. Tenured and probationary teachers were included. Retired educators and preservice teachers were excluded from this study because they were active teachers who had prior experience in an MBSR intervention. Lastly, any retired or active teachers from the principal investigator's school district were also excluded. There were no prerequisites to participate in the MBSR course.

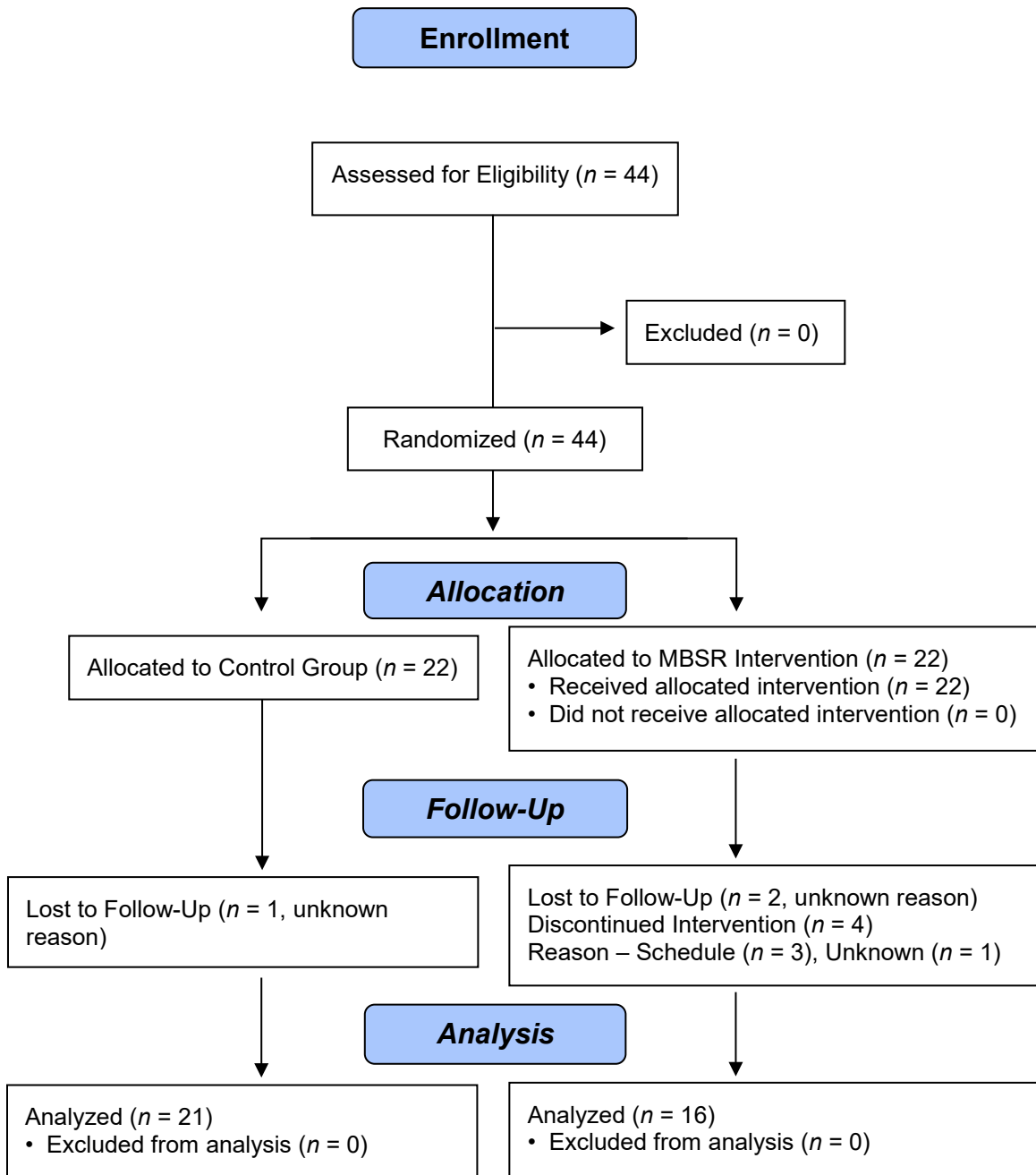
Participant Characteristics

Percentages of the following characteristics were collected from the sample of participants: gender, classroom teachers, non-classroom professionals (i.e., special areas, speech, reading, counselors, and school psychology), and different races/ethnicities. Additionally, the mean number of years of experience, mean age, and the number of participants with experience with mindfulness practices were collected from the sample of participants.

Randomly assigned to two groups, 44 educators started participating in this study. The control group originally consisted of 22 educators, and the experimental MBSR group also consisted of 22 educators. Demographic data were collected from all 44 participants from a completed questionnaire. One person from the control group did not complete the final five surveys, four teachers from the experimental group dropped out of the study before the fifth MBSR class, and another two participants did not complete all five surveys at the end of the course. The effective sample sizes were 21 and 16 for the control and experimental groups, respectively. The participant enrollment flow is shown in Figure 3.1.

Figure 3.1

CONSORT Flow Diagram



Sampling Procedures

Once approval from the St. John Fisher College Institutional Review Board (IRB) was obtained, emails describing the MBSR course were distributed to teachers and professionals in 15 districts via their superintendents and school principals. The dissemination occurred 4 weeks before the beginning of the course, and 44 educators meeting the inclusion parameters and who had signed the informed consent forms were randomly assigned to either the experimental MBSR group or to a control group.

A demographic form was completed by each participant at the beginning of the study. All participants were sent a check-in form that asked two questions regarding levels of stress, anxiety, and success, and this check-in form was distributed before the first class was scheduled (Week 0) and again at Weeks 2, 4, and 6. No compensation was offered to the participants.

Sample Size, Power, and Precision. The intended sample size was up to 100 K-12 educators. The minimum sample size to achieve statistical power, using Cohen's d of 0.70, was 68 participants. Ultimately, this study was based on 37 participants which has implications about statistical power discussed in Chapter 5.

Measures and Covariates. All measures and covariates collected were included in the analysis and final report.

Instruments Used in Data Collection

Each participant completed two-question surveys at Weeks 0, 2, 4, and 6 of the study. Each participant also completed five measures immediately following the last MBSR class session.

Instrumentation and Psychometrics

The instruments for this study included five measures that were given to all participants:

1. Maslach Burnout Inventory – Educator’s Survey
2. Areas of Worklife Scale (AWS)
3. Perceived Stress Scale (PSS)
4. State-Trait Anxiety Inventory (STAI) for Adults
5. Five-Factor Mindfulness Questionnaire (FFMQ)

Permission to use each measure was granted prior to dissemination to the participants.

All participants, including the control and experimental groups, were given the following items to complete: (a) a demographic form, and (b) check-in surveys before Weeks 0, 2, 4, and 6 of this study.

Burnout. The Maslach Burnout Inventory was used to measure burnout (Schaufeli et al., 1996). It measures each of the three components of burnout: emotional exhaustion, depersonalization/cynicism, and personal accomplishment (efficacy). This inventory includes items such as “I feel burned out from my work,” and “I feel confident that I am effective at getting things done.” The items are rated 1, “never,” to 6, “daily.” Burnout is reflected by higher scores on exhaustion and cynicism and lower scores on efficacy (Maslach & Leiter, 2008). Educator burnout was specifically measured using the 22-item Maslach Burnout Inventory – Educator’s Survey (Maslach et al., 1986). The exhaustion items measure fatigue and overextension, while the depersonalization items refer to an educators’ sense of stepping away from their classroom roles and responsibilities. Lastly, the efficacy items measure the educator’s sense of

accomplishment in their role and how likely they feel it can continue (Flook et al., 2013; Maslach et al., 1986).

Subscale scores were determined by dividing the total score for each subscale by the number of questions delegated to that subscale. Emotional exhaustion had nine questions, while depersonalization and personal accomplishment had eight and five questions, respectively. Some of the items were reversed scored.

Areas of Worklife (AWS). The AWS is the most common measure for this conceptual model of burnout, and it was designed by Leiter and Maslach (2000, 2003). It includes 29 items that measure the degree of match or mismatch across the six areas of worklife: workload, control, fairness, reward, community, and values. According to Maslach and Leiter (2008), “The items are worded as statements of perceived congruence or incongruence between oneself and the job” (p. 503). Each subscale includes positively worded items of congruence. For example, “I have enough time to do what’s important in my job” (workload) (Maslach & Leiter, 2008, p. 503). The items also include negatively worded items of incongruence. For example, “Working here forces me to compromise my values” (values) (Maslach & Leiter, 2008, p. 503).

Each response is based on a 5-point Likert-type scale: 1 – strongly disagree, 3 – hard to decide, 5 – strongly agree. There are some items that are reversed scored. Congruence is based on a score higher than 3, indicating a sense of “match” between worklife and the respondent’s preferences. Conversely, scores below 3 indicate a high degree of incongruence or “mismatch” (Maslach & Leiter, 2008).

The AWS is scored by calculating six scores; one for each subscale. Subscale scores are determined by dividing the total score for each subscale by the number of questions

delegated to that subscale. Each of the six areas of worklife are treated as separate entities unto themselves, and they are not combined into one overall score.

Stress. The Perceived Stress Scale (PSS) (Cohen et al., 1983) is an instrument used to measure individuals' stress in their personal and professional lives. This scale is a 10-item Likert-type scale where individuals report responses to items addressing times when they have thought or felt a certain way. Higher scores indicate higher stress. This measure has been used and found reliable with adults across multiple studies (Bodenlos et al., 2015).

An instrument that was used to measure levels of anxiety is the state subscale of the STAI for adults (Kendall et al., 1976). This is a 20-item scale that assesses how often a person is experiencing a symptom during the previous few days: 1 = not at all, 4 = very much (Roeser et al., 2013). Overall scores can range from 20 to 80, and higher scores reflect greater anxiety.

Mindfulness. Mindfulness was assessed using the FFMQ (Baer et al., 2006). The FFMQ is a 39-item, self-report scale, and it measures five aspects of mindfulness that can be improved through practice. These include (a) observing (eight items), (b) describing (six items and two reverse key items), (c) acting with awareness (eight reverse key items), (d) nonjudging (eight reverse key items), and (e) nonreactivity (seven items) (Flook et al., 2013). Repeated administration of the measure has pointed at high test-retest reliability and internal consistency for all five subscales with Cronbach's α between 0.75 and 0.91 (Baer et al., 2006; Flook et al., 2013).

Masking

No masking was necessary for this study because the participants, the course instructor, and the researcher were aware of the conditions of the assignments.

Conditions and Design

The MBSR curriculum was delivered online via Zoom due to the COVID-19 pandemic. The course was taught by a certified MBSR instructor. The instructor had spent over 500 hours in her certification program over the past 4 years, and she had been teaching MBSR for 2 years. This instructor had been teaching mindfulness and yoga for 10 years and was considered an expert in her field. The curriculum was delivered through 10 different virtual sessions.

Orientation. This session was meant to be an “encounter” that encompasses the essence of MBSR. The instructor met each of the participants and discussed the following topics:

- History of MBSR
- Definition of mindfulness and what it is and is not
- Pertinent research findings, including health and well-being outcomes
- Practical and logistical information about the course
- An experience of practice including a few mindful movements (sitting or standing), and a brief sitting meditation

Weeks 1 and 2. The first two classes set the stage for the program. The centrality of awareness and mindfulness in everyday activities that the participants completed in class and at home were discussed. The instructor introduced mindful yoga, the body scan, as well as a variety of formal and informal attentional focus practices. The group

eventually discussed the concepts of perception and creative responding. Specifically, the instructor helped the participants examine how they would see or would not see things, such as the stresses and challenges currently in their lives (Koerbel & Meleo-Meyer, 2019). The homework assignment for each participant was to choose just one activity to do every day, and this activity had to be done slowly and with presence (Koerbel & Meleo-Meyer, 2019).

Week 3. The themes for this class included the power of being present and how that moment-to-moment experience is felt in the body and mind. Formal sitting meditations were introduced as well as yoga movements. The participants were asked to reflect on ordinary movements during the day and how these movements affected the body, mind, and emotional field (Koerbel & Meleo-Meyer, 2019).

Weeks 4 and 5. These two classes served as a “pivot” in the MBSR program. The instructor helped her students investigate unwanted experiences and how these experiences show up as unpleasant and uncomfortable physical sensations as well as emotions and thoughts. The physiological and psychological impacts of stress were discussed along with the ways that stress can manifest in individuals physically, cognitively, and emotionally (Koerbel & Meleo-Meyer, 2019).

The highlighted meditation practice in these classes was the sitting practice, with awareness shifting from body sensations to the breath, sound, thoughts, or emotions. Choiceless awareness was also introduced. The group examined the awareness of an individual’s habitual and conditioned patterns and how mindfulness can act as a mediator in the recognition of these patterns (Koerbel & Meleo-Meyer, 2019). At this point in the course, the participants were beginning to experience, for themselves, a sense of agency

and capacity as they met and explored a variety of moments, including those that were especially stressful from a perspective of mindfulness (Koerbel & Meleo-Meyer, 2019).

Week 6. The participants honed their skills and learning from the previous 2 weeks with an emphasis on intentionally bringing awareness to moments of reactivity. The themes of communication and interpersonal relationships were highlighted in this week, and the group discussed how mindfulness can support interactions with others. Lastly, the instructor led her students through a discussion on how mindfulness can lead to more authentic connections (Koerbel & Meleo-Meyer, 2019).

All-Day Retreat. This session lasted 6 hours and it afforded the participants with an extended experience of both formal and informal practice. The MBSR curriculum and teaching guide (Koerbel & Meleo-Meyer, 2019) describes this as

An opportunity to be with ourselves without the usual distractions, and also, this may be stressful. There is no one way to experience the all-day. This day is just another opportunity to explore the possibility of being fully present with ourselves as we are. (p. 43)

The participants cycled through sitting mediation, guided lying-down yoga, walking meditation, standing yoga, loving-kindness meditation, and, then, a final silent sitting.

Weeks 7 and 8. The group's discussions during the last 2 weeks focused on the integration of mindfulness practice into the daily lives of each participant and how to cultivate and continue the practice after the class was completed (Koerbel & Meleo-Meyer, 2019). There was an exploration about lifestyle choices, be they adaptive or maladaptive, made around technology, cell phones, computers, and engaging with social media, news outlets, television, and all forms of entertainment. The group of participants

reflected during their last class on their appreciation for the individual discipline, commitment, and energy that had been applied over the entire MBSR program, and they appreciated having space to refine, clarify, and articulate their choices for continuing the practice (Koerbel & Meleo-Meyer, 2019).

Procedures for Data Analysis

Data analysis was performed using Intellectus Statistics. The scales previously described were tested for normality. If normal, a *t*-test was used, and if the data were not normal, a Mann-Whitney test was used. All tests were two-tailed, and the significance level was set at $p < .05$.

Summary

Burnout, stress, and anxiety are considerable factors within the K-12 public education realm. It has become imperative to identify resources that can help teachers manage their stress, feel an increased sense of personal accomplishment, and reduce symptoms of burnout (Abenavoli et al., 2013). MBIs, through their neurobiological effects, may be one such resource to help manage stress. A randomized, controlled study was selected to examine the effects of one specific MBI, namely MBSR, on educator stress, well-being, and each of the three dimensions of burnout (exhaustion, cynicism, and inefficacy). Educators participated in an 8-week MBSR intervention. Post-intervention assessments were collected from each participant in the control and experimental groups using five validated scales that measured overall well-being, stress, and the components of burnout. Quantitative analysis was conducted to compare the effectiveness of the MBSR intervention regarding the symptoms and traits measured by each of the scales.

Chapter 4: Results

Burnout, stress, and turnover are areas of significant concern for educators. The effects of burnout, stress, and turnover have physical, emotional, and mental ramifications for educators, which also result in consequences for students, colleagues, and organizations. It has become imperative to identify resources to increase teachers' sense of efficacy and ability to manage stress. Mindfulness-based interventions (MBIs), through their neurobiological effects, may be one such resource. This randomized, controlled study examined the effects of one specific MBI, namely mindfulness-based stress reduction (MBSR), on educator stress, well-being, and on each of the components of burnout: exhaustion, cynicism, and inefficacy. The educators participated in an 8-week MBSR course. Quantitative analysis was then conducted to compare the effectiveness of MBSR on burnout, stress, and anxiety as measured by five validated scales. Each of the five scales, the Areas of Worklife Scale (AWS), Maslach Burnout Inventory – Educator Survey (MBI-ES), the State-Trait Anxiety Index (STAI), the Perceived Stress Scale (PSS), and the Five-Factor Mindfulness Questionnaire (FFMQ), helped to answer the two research questions regarding MBSR and its effect on K-12 educators and their sense of burnout and well-being:

1. Will an MBSR intervention affect the degree and intensity of burnout symptoms (i.e., exhaustion, cynicism, and inefficacy) experienced by educators?

2. What is the impact of an MBSR intervention on the overall well-being, stress, and anxiety in educators?

Data Analysis and Findings

Analysis of Groups for Participant Demographics

Table 4.1 summarizes the findings from two-tailed, independent samples *t* tests that were performed for the demographic data.

Table 4.1

Two-Tailed Independent Samples t-Test for Participant Demographics

Demographic	Control		MBSR		<i>t</i>	<i>p</i>	<i>d</i>
Variable	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Age	45.45	9.23	43.10	11.28	0.75	.456	0.23
Gender	1.09	0.29	1.10	0.30	-0.05	.962	0.01
Years of Experience	16.93	9.08	13.38	9.19	1.27	.210	0.39
Mindfulness Rating	2.95	0.90	2.90	0.70	0.20	.841	0.06

Note. *N* = 43; degrees of freedom for the *t* statistic = 41; *d* represents Cohen's *d*; **p* < .05; ***p* < .01.

The participants were comparable across all groups in terms of age, gender, and years of experience (*p* > .05). Out of the 21 control group participants, 19 self-identified as female. Out of the initial 22 MBSR group participants, 19 self-identified as female. The average age of the participants in the control group was 45.5 years, and the average age of the experimental group was 43.1 years. The control group participants had 16.9 years of experience compared to 14 years of experience for the members of the MBSR group. Lastly, each of the participants was asked to rate, on a scale from 1 to 5, their experience with mindfulness at the beginning of the study. The control group had an

average familiarity rating of 2.95, and the rating for the experimental group was 2.90 ($p > .05$).

MBSR Efficacy on Educator Burnout

Maslach Burnout Inventory and Areas of Worklife Scale

In response to Research Question 1, Tables 4.2 and 4.3 summarize the results from the MBI-ES and the AWS. As discussed in Chapter 3, educator burnout was specifically measured using the MBI-ES, a 22-item scale that assesses three dimensions of burnout (Maslach et al., 1986). The exhaustion items refer to overextension and fatigue caused by work demands, while the depersonalization items refer to educators' mental distance from their roles and responsibilities. The efficacy item measures the educator's sense of accomplishment in their role and how likely they feel it can continue (Flook et al., 2013; Maslach et al., 1986).

Table 4.2

Two-Tailed Independent Samples t-Test for Maslach Burnout Inventory – Educator's Survey

Variable	Control		MBSR		<i>t</i>	<i>p</i>	<i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Emotional Exhaustion	3.58	1.00	2.53	1.16	2.90	.006**	0.97
Depersonalization	0.68	0.72	0.91	0.75	-0.93	.360	0.31
Personal Accomplishment	4.33	0.74	4.91	0.73	-2.31	.027*	0.78

Note. $N = 36$; degrees of freedom for the *t* statistic = 34; *d* represents Cohen's *d*. * $p < .05$, ** $p < .01$.

The participants in the MBSR intervention were almost one standard deviation below the control group in emotional exhaustion ($d = 0.97$, $p < .01$), and the MBSR

intervention participants were two-thirds of a standard deviation higher in personal accomplishment ($d = 0.78, p < .05$) than the control group. MBSR had no detectable efficacy on the depersonalization subscale of the Maslach Burnout Inventory ($p > .05$).

The AWS is composed of 29 items that are worded as statements of match or mismatch between oneself and one's job (Maslach & Leiter, 2008). Scores for each participant were generated for each of the six areas of worklife: workload, control, fairness, reward, community, and values. Congruence is noted by a score higher than 3, and this indicates a congruent match between worklife and the respondents' preferences. Conversely, scores below 3 indicate a high degree of incongruence (or mismatch) between the respondents and their workplace (Maslach & Leiter, 2008).

Table 4.3

Two-Tailed Independent Samples t-Test for AWS – Workload

Variable	Control		MBSR		<i>t</i>	<i>p</i>	<i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
AWS – Workload	2.19	0.83	2.83	1.00	-2.09	0.044*	0.69
AWS – Control	3.13	0.88	3.77	0.81	-2.21	0.034*	0.75
AWS – Community	3.40	0.88	3.60	1.04	-0.63	0.536	0.21
AWS – Fairness	3.17	0.55	3.16	0.76	0.05	0.960	0.02
AWS – Value	3.69	0.47	3.65	0.66	0.22	0.830	0.07
AWS – Reward	3.45	0.68	3.18	1.01	0.95	0.347	0.31

Note. $N = 36$; degrees of freedom for the *t* statistic = 34; *d* represents Cohen's *d*; * $p < .05$; ** $p < .01$.

Significant differences were seen with two of the six areas of worklife: workload and control. The educators receiving the MBSR intervention scored nearly three-quarters of a standard deviation higher on the workload subscale ($d = 0.69, p < .05$), indicating

that these participants viewed their workload as more manageable and reasonable than the control group viewed their workload. The MBSR participants also reported significantly higher scores within the control subscale ($d = 0.75, p < .05$). Higher scores within this component of the AWS align with the participants' belief that they had control over their work environment. No significant differences ($p > .05$) were detected among the mean scores between the control and the MBSR intervention groups for the four remaining areas of worklife subscales of community, fairness, value, and reward.

State-Trait Anxiety Index and the Perceived Stress Scale

Tables 4.4 and 4.5 show results from two surveys: STAI and PSS. Both measures helped to answer the second research question which specifically examined the impact of an MBSR intervention on the overall well-being, stress, and anxiety in the educators.

As described in Chapter 3, the STAI is a 20-item scale that assesses the degree to which the participants had been feeling a symptom during the previous few days: 1 = not at all, 4 = very much (Roeser et al., 2013). Overall scores range from 20 to 80, with those participants feeling more anxious scoring higher than those who are not.

Table 4.4

Two-Tailed Independent Samples t-Tests for the STAI

Variable	Control		MBSR		<i>t</i>	<i>p</i>	<i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
STAI score	44.67	12.75	36.47	7.62	2.22	.033*	0.78

Note. $N = 36$; degrees of freedom for the *t* statistic = 34; *d* represents Cohen's *d*; * $p < .05$, ** $p < .01$; lower scores indicate less anxiety.

The educators in the MBSR group reported anxiety levels that were nearly eight-tenths of a standard deviation lower than those in the control group ($d = .078, p < .05$). The PSS (Cohen et al., 1983) measures individuals' stress in their personal and professional lives. Higher scores indicate higher stress.

Table 4.5

Two-Tailed Independent Samples t-Test for Perceived Stress

Variable	Control		MBSR		<i>t</i>	<i>p</i>	<i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Perceived stress	19.71	8.27	14.33	5.54	2.19	.036*	0.76

Note. $N = 36$; degrees of freedom for the *t* statistic = 34; *d* represents Cohen's *d*; * $p < .05$, ** $p < .01$; lower scores indicate less stress.

Results from the PSS measure mirror those results seen with the STAI assessment. The educators among the control group reported stress levels that were three-quarters of a standard deviation higher than the teachers taking the MBSR intervention ($d = 0.76, p < .05$). In summary, Tables 4.4 and 4.5 show that MBSR decreases self-reported stress and anxiety among K-12 educators.

Five-Facet Mindfulness Questionnaire (FFMQ)

Mindfulness was assessed using the FFMQ (Baer et al., 2006), and the results are shown in Table 4.6. The FFMQ is a 39-item, self-reported scale that measures aspects of mindfulness that can be improved through practice: observing, describing, acting with awareness, nonjudging, and nonreactivity (Flook et al., 2013).

Table 4.6*Two-Tailed Independent Samples t-Test for the FFMQ*

Variable	Control		MBSR		<i>t</i>	<i>p</i>	<i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
FFMQ	123.00	22.04	137.88	14.82	-2.33	.026*	0.79

Note. $N = 37$; degrees of freedom for the t statistic = 35; d represents Cohen's d ; * $p < .05$, ** $p < .01$.

The members of the MBSR intervention group reported significantly higher scores, nearly eight-tenths of a standard deviation, on the FFMQ measure ($d = 0.79$, $p < .05$). This indicates a higher degree of mindfulness among these educators as compared to those in the control group.

Determining the Minimum Number of MBSR Sessions to be Effective Among Educators

All the participants in this study were sent two questions every 2 weeks (Weeks 0, 2, 4, and 6). One question asked the educators how much stress they were feeling, and the second question asked them to reflect on how successful they felt in their jobs (see Appendix). The results are shown in Table 4.7.

No significant difference in the mean scores was ever detected with the “success question” ($p > .05$). Interestingly, the MBSR group reported significantly less stress beginning at Week 4 ($d = 0.72$, $p < .05$), and this difference became more pronounced by Week 6 ($d = 1.35$, $p < .01$). This indicates the salient effects of the 8-week MBSR course began at the midway point.

Table 4.7*Two-Tailed Independent Samples t-Test for Biweekly Check-In Surveys*

Variable	Control		MBSR		<i>t</i>	<i>p</i>	<i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Week 0 Stress	3.32	0.99	3.62	0.97	-1.00	.322	0.31
Week 0 Success	3.32	0.89	3.14	0.91	0.64	.528	0.19
Week 2 Stress	3.45	0.96	3.44	0.70	0.04	.971	0.01
Week 2 Success	3.23	0.81	2.94	1.06	0.96	.344	0.30
Week 4 Stress	3.73	0.94	3.00	1.08	2.28	.028*	0.72
Week 4 Success	3.14	1.04	3.39	0.78	-0.85	.398	0.28
Week 6 Stress	3.73	0.98	2.47	0.87	4.15	<.001**	1.35
Week 6 Success	3.23	0.81	3.47	0.80	-0.93	.357	0.30

Note. *N* = 43; degrees of freedom for the *t* statistic = 41; *d* represents Cohen's *d*; **p* < .05, ***p* < .01.

Summary of Results

The results from each of the five validated measures, as well as from the check-in surveys shown in Table 4.8, helped to answer each one of the two research questions. The data from the MBI-ES and the AWS support the hypothesis that an MBI, namely MBSR, helped to reduce the degree and intensity of burnout symptoms (emotional exhaustion and personal accomplishment) and the degree of mismatch in worklife, specifically workload and control, experienced by educators. Results from the last three measures (STAI, PSS, and FFMQ), as well as data from the Check-In Surveys support the premise that MBSR can help reduce stress and anxiety in educators while also improving their overall well-being.

Table 4.8*MBSR Efficacy on K-12 Educators*

Significant Results			Inconclusive Results		
Measure	Cohen's <i>d</i>	<i>p</i>	Measure	Cohen's <i>d</i>	<i>p</i>
Maslach Burnout Inventory – Emotional Exhaustion	0.97	.006	Maslach Burnout Inventory – Depersonalization	0.31	>.05
Maslach Burnout Inventory – Personal Accomplishment	0.78	.027	AWF – Community	0.21	>.05
AWL – Workload	0.69	.044	AWL – Fairness	0.02	>.05
AWL – Control	0.75	.034	AWL – Value	0.07	>.05
STAI	0.78	.033	AWL – Reward	0.31	>.05
PSS	0.76	.036	Week 0 Check-In Survey – Stress	0.31	>.05
FFMQ	0.79	.026	Week 0 Check-In Survey – Success	0.19	>.05
Week 4 Check-In Survey – Stress	0.72	.028	Week 2 Check-In Survey – Stress	0.01	>.05
Week 6 Check-In Survey – Stress	1.35	<.001	Week 2 Check-In Survey – Success	0.30	>.05
			Week 4 Check-In Survey – Success	0.28	>.05
			Week 6 Check-In Survey – Success	0.30	>.05

Chapter 5: Discussion

Introduction

Burnout, stress, and turnover are areas of significant concern for educators, with stressors within the classroom compared to those that emergency department physicians experience (Jennings, 2018). The effects of burnout, stress, and turnover result in not only physical, emotional, and mental challenges for educators, but there are additional ramifications for the educators' students, colleagues, and organizations. These consequences can result in decreased levels of student engagement and achievement, decreased collegiality within school buildings, and increased health and human resource costs (Jennings et al., 2013; Roeser et al., 2013).

Stress in the form of disruptive student behavior, time demands, and overall workload can impact an educator's ability to be responsive and effective and can lead to areas of worklife mismatch and eventually to burnout (Flook et al., 2013; Maslach et al., 2001). Abenavoli et al. (2013) posited that the personal, societal, and financial costs associated with educator stress, burnout, and turnover are too high to ignore. The researchers suggested that it is imperative to identify resources to help teachers manage their stress and their anxiety, as well as aid them in feeling a sense of personal accomplishment (Abenavoli et al., 2013). Mindfulness-based interventions (MBIs), through their neurobiological effects, may be one such resource.

This study examined the effects of one specific MBI, namely mindfulness-based stress reduction (MBSR), on educator stress, anxiety, well-being, and each of the three

dimensions of burnout (exhaustion, cynicism, and inefficacy). After participating in an 8-week MBSR intervention, K-12 educators completed validated scales that measured their overall well-being, stress, anxiety, and the components of burnout.

Chapter 4 outlined the results and findings. Notably, MBSR significantly reduced self-reported levels of emotional exhaustion, workload, stress, and anxiety in those participating in the intervention. Participants also reported significantly higher levels of personal accomplishment, control and mindfulness. There was no comparable difference in the burnout component of depersonalization and the worklife areas of community, values, reward, and fairness.

The implications of these findings, the limitations of the research, recommendations for future research, and a summary of the research study are outlined in this chapter.

Implication of Findings

This current study is one of only a handful of studies that has ever targeted educators with some version of MBSR. The results are clear that MBSR is an intervention that can reduce stress, anxiety, and burnout among K-12 educators. This study's findings are more pronounced than those seen in the research completed by Flook et al. (2013), Gouda et al. (2016), and Roeser et al. (2013), three studies involving educators and mindfulness. Gouda et al. (2016) used MBSR in a school-embedded study that had teachers receiving training during their actual workday on school premises. Roeser et al. (2013) used mindfulness training that was like MBSR in that it included experiences with breath meditation and open awareness, but it did not include any yoga instruction. Lastly, the Roeser et al. course differed from the traditional MBSR used in this current study because it included two didactic lectures regarding how to use

mindfulness to regulate emotions and stress and was taught by an instructor who was not certified in MBSR (Roeser, et al., 2013).

Flook et al. (2013) incorporated a modified MBSR (mMBSR) curriculum. According to Flook et al. the curriculum was modified to include the integration of classroom management and instructional skills, and the participants were given permission to vary the length of their length of home practice from 12 to 45 minutes (Flook et al., 2013). The traditional MBSR course used in this study offered only one length of guided practice time per week, and no specific school-related activities and practices were used. One last modification was the presentation of the training program exclusively to educators, as opposed to opening it up to the general public (Flook, et al., 2013).

Table 5.1 compares the effect sizes (Cohen’s *d*) between this current study and those found in the other three studies. The effect sizes for the components of burnout (emotional exhaustion and decreased sense of personal accomplishment), stress, anxiety, and mindfulness reported in this study outpaced all those from the other studies in all instances except for one: personal accomplishment in the Flook et al. study (2013).

Table 5.1

Comparison of Cohen’s d to Previous Studies

Measure	Current study	Flook et al.	Gouda et al.	Roeser et al.
Mindfulness	0.79	0.33 & 0.24	0.66	0.79
Stress	0.76	Not tested	<i>ns</i>	0.57
MBI-EE	0.97	0.25	Not tested	0.76 [#]
MBI-PA	0.78	0.99	Not tested	0.76 [#]
STAI	0.78	Not tested	0.46	Not tested

Note. *ns* = result not significant, $p > .05$; [#]used a different Maslach Burnout Inventory Survey.

The FFMQ results indicate that the MBSR intervention did help educators increase their levels of mindfulness. This finding has twofold relevance. First, increased mindfulness has been associated with improved social and emotional health, particularly among teachers (Flook et al., 2013; Gold et al., 2010; Jennings et al., 2013; Khoury et al., 2013; Roeser et al., 2013). This improvement in mental wellness may, in the long run, inoculate educators against burnout and the deleterious effects of stress and anxiety.

Second, the significant increases in self-reported mindfulness carries even more importance within the education field. Mindfulness among teachers can lead to the creation of a nurturing and supportive classroom climate and culture, and this can help to improve student-teacher relationships and contribute to the overall social, emotional, and academic success for students (Jennings, 2018; Jennings & Greenberg, 2009). This increased sense of mindfulness and decreased level of stress may also allow educators to devote more energy to their practice and profession (Flook et al., 2013).

Teachers and administrators are faced with tasks each day that are as challenging and frustrating as they may be rewarding and inspirational. There are intense interactions with students, parents, and colleagues that require a relentless sense of reflection, self-management, and constant renewal of one's purpose and accomplishment (Gouda et al., 2016). These intensive interactions can lead to surface acting, which is an emotional regulation strategy that can lead to emotional exhaustion and burnout. Surface acting is akin to "biting one's tongue" when confronted with angry clients, stress, and hostility. Hulsheger et al. (2013) and Grandey (2003) both reported that surface acting negatively affects a person's well-being by increasing emotional exhaustion. In the educational field,

this emotional exhaustion can increase the number of negative social interactions that a teacher has with students, parents, and colleagues.

The results indicate that MBSR is a resource for educators that increases mindfulness and decreases emotional exhaustion. The decrease in emotional exhaustion may be the consequence of the enhanced sense of mindfulness, which, in turn, helps to decrease surface acting. Mindfulness seems to offer an alternative approach to the stressful and challenging interactions educators face daily. Rather than ignore or mask negative emotions that a teacher may face during daily interactions with their students and colleagues, mindful educators may be able to apply a different attitude to these emotions (Gouda et al., 2016). It is this different, more mindful attitude that decreases the need for surface acting and allows for the challenging emotions to arise and pass without the individual feeling the need to act or react to them immediately (Flook et al., 2013; Gouda et al., 2016). This attitude of mindfulness, enhanced by experiences like MBSR, not only can reduce surface acting and, in turn, emotional exhaustion and burnout, but it may also be the mechanism to reduce stress and anxiety as seen in the MBSR group of teachers in this study.

MBSR had significant effects on the educators in areas other than mindfulness as well. The participants reported using validated measures, significantly less stress, and anxiety. At the same time, the educators receiving the MBSR intervention reported an increase in their sense of personal accomplishment, a manageable workload, and control over their work environment. Each of these three areas can fortify an educator from burnout (Maslach & Leiter, 2016).

Finally, the results from the check-in survey question, “How stressed and anxious do you feel in your job?” coincide with the findings seen with the Perceived Stress Scale (PSS). At Weeks 4 and 6, the MBSR group reported significantly less stress than the control group. It is also interesting to note that there was no significant difference in stress levels in Weeks 0 and 2. These results indicate that the MBSR intervention begins to reduce a participant’s stress levels after the midway point of the course (i.e., Week 4 out of 8 weeks).

Limitations

Lack of statistical power is the most significant limitation in this study, and this prevented, in all likelihood, any small and medium effect sizes from being statistically significant. Sixty-eight participants were needed to achieve statistical power, and this study had 37 participants who completed all five assessments. In future studies, it may help to recruit teachers for a second semester MBSR experience instead of adding “one more thing” to their plate as the new school year begins in the fall.

This study occurred during the COVID-19 pandemic, and as such, the levels of stress and anxiety may have been more pronounced in both the control and the MBSR groups of educators than in a “typical” year. The addition of hybrid learning platforms and schedules, along with having to wear a mask and the general fear of contracting the coronavirus made this current school year like no other in memory. The results do show, however, that a 100% virtual approach to MBSR does result in significant decreases in stress, anxiety, and levels of burnout. The limitation of delivering this intervention during a global pandemic has shown that teaching MBSR using a virtual platform can work; and it may make MBSR more approachable, accessible, and cost effective. Also, the key

efficacy findings reported in this study were based entirely on the educators' self-report data. As is the case with studies that rely on self-reported findings, social desirability cannot be ruled out in these measures and findings.

The sample size of this study was relatively small and homogeneous. Only 44 educators participated. Of the 44 participants, 43 identified as Caucasian at the outset, and 37 participants remained engaged through the end of the 8-week intervention. Of the 37 participants, 35 were from suburban or rural settings, and two were employed by a large urban district. Consequently, the results are limited in generalizability to those groups represented here, namely suburban, White educators. However, for the participants from this particular region, the study demonstrated the efficacy of MBSR for those selected groups.

Although significant findings included many different measures during this study, no follow-up assessments were done to determine if such findings were sustained weeks or months after the completion of the MBSR intervention. Some intervention effects may take more time to appear, while others may dissipate over time.

Lastly, similar to the vast majority of RCTs using MBSR, this study did not use an active control group. Therefore, the results may have occurred from the teacher participants receiving an intensive amount of attention and group support, even while considering the 100% remote setting. Although there was initial concern that a remote learning model might diminish the experience for the participants, this study demonstrates that MBSR could successfully be offered in a virtual model with overall positive results.

Recommendations For Future Researchers

This study has shown that MBSR is an effective intervention for stress, anxiety, and burnout among educators. It is also a cost-effective way to improve the overall well-being of educators. Research should continue to determine ways to expand the use of MBSR and to understand the mechanisms by which it impacts the neurobiology of its participants.

It is recommended that follow-up surveys be readministered 4 weeks, 4 months, and 1 year after the completion of the MBSR experience. This would help to determine the sustainability of the MBSR effects on the educators. This is a limitation among all published research thus far and warrants further attention generally.

Unlike the studies conducted by Roeser et al. (2013) and Gouda et al. (2016), this current research, similar to the vast majority of mindfulness research, did not include an active control group. Future studies should include an active control group. This group would receive equivalent amounts of time in relaxation and stress-reduction techniques as well as time with an instructor, but the group would not be included in the active mindfulness training. To improve the degree of the application and generalizability, it is important to employ a larger sample size, more educators of color, and more teachers who work in urban or rural districts. Lastly, over 90% of the participants identified as female, so it would be important to recruit more educators who identify as male in a future study.

This current study, done with a 100% remote platform, saw the effects that outperformed those studies performed with 100% in-person instruction. A future study should be done that uses the same instructor with three experimental groups: 100%

virtual instruction, 100% in-person instruction, and a hybrid group that would receive 50% remote and 50% in-person instruction. The effects of burnout, stress, and anxiety among educators receiving these treatments could then be examined to determine if one platform of instruction is more effective than the others.

A future study could also target preservice educators as well as probationary and tenured educators. Such a study could help determine if the effects of an MBSR intervention are moderated by the participants' classroom experience. For example, will experienced, tenured teachers, typically those with 6 years or more in the classroom, show different levels of burnout, stress, and anxiety after an MBSR intervention when compared to preservice or probationary teachers?

This research should also be replicated with a focus on non-suburban, non-white educators. Will those educators in urban or rural districts also respond to MBSR as this current shows suburban educators do? Are the effects seen in this current study limited to White educators, or will the positive effects of MBSR also translate to African American, Hispanic, and Indigenous teachers and administrators?

A future study focused on the effects of MBSR interventions among K-12 students is strongly recommended given the importance of improving mental wellness, not only among faculty and staff but also within the student population. Students would benefit enormously from becoming better versed in their stress and anxiety management strategies. The mediating effects of student mindfulness on the levels of burnout among faculty could also be studied.

Pairing this research with neurophysiology studies, specifically including fMRI scans of the participants before, during, and after the MBSR intervention also holds

promise. What are the physical and chemical changes within certain brain structures that can occur in educators experiencing the MBSR intervention, and are those changes consistent with changes in other studies of participants experiencing stress and trauma-induced events?

Lastly, to address the limitations of self-report assessments, other methods of collecting data could be used such as (a) behavioral measures of attention and emotion regulation (Jha et al., 2010), (b) assessing cortisol levels and heart rate variability (Matousek et al., 2010), and (c) third-person observational measures of the teachers' classroom teaching and interactions with students (Pianta & Hamre, 2009).

Recommendations For Administrators and Policy Makers

There typically is a cost of several hundred dollars for someone to participate in an MBSR course. This cost may be prohibitive for some educators, and it may prevent them from enrolling—even if they have an interest. It may benefit individual districts to target professional development budgets toward MBSR interventions for their faculty and staff. Dollars spent on decreasing stress, anxiety, and burnout symptoms among teachers can result in increased engagement, attendance in the workplace, and less money spent on substitute teachers. In essence, this may result in a cost-neutral proposition where the money saved in substitute costs (\$125 per day on average) is used to pay for MBSR tuition (\$250 per teacher). Considering that the results noted in this study were after a relatively brief period (8 weeks), such investment presents a cost-effective investment model for districts, given the costs associated with educator stress, anxiety, and burnout and the consequential repercussions for student academic performance (Flook et al., 2013). Training in MBSR could occur outside of the school day, and it could also happen

during release time in the instructional day. Lastly, it would make sense to offer MBSR during new teacher orientation and as part of a district's mentoring program.

The dramatic results of this current study, along with the ease of access and opportunity to conduct the MBSR intervention via a 100% remote platform strongly suggest that the financial support of the MBSR course as an intervention to stress, anxiety, and burnout should extend beyond the district level. State and federal funding should be allocated to all districts across the United States to fund the costs of MBSR. Also, it is recommended that health insurance carriers also reimburse any out-of-pocket costs related to MBSR registration fees for clients who are K-12 educators. Teacher burnout and the resultant attrition and turnover is not a problem that is limited to specific districts in distinct regions across our country. It is an issue that extends beyond the borders and boundaries of individual school districts, counties, and states. Filling an educator vacancy in 2017 costs, on average, \$21,000 (Carver-Thomas & Darling-Hammond, 2017), and the annual cost of educator turnover, as of 2018, now exceeds \$8 billion in the United States (Carroll, 2017). It makes sense to adopt effective measures, such as MBSR, whose costs are dwarfed by resultant savings—not to mention the overall health benefits experienced by the educators and the positive benefits for classroom climate, culture, and student achievement (Abenavoli et al., 2013; Flook et al., 2013; Ronfeldt et al., 2013). Recommendations are warranted for state and federal dollars to be granted to districts specifically for burnout prevention using MBSR interventions.

Conclusion

Burnout, stress, and turnover are areas of significant concern for educators, and this study definitively shows that mindfulness, specifically MBSR, can significantly

reduce those areas' levels. The daily stresses within the classroom are comparable to those that emergency department physicians experience (Jennings, 2018), and the effects of burnout, stress, and turnover have physical, emotional, and mental ramifications for educators, their students, and their colleagues. While teaching is a profession fraught with stress, burnout, and turnover, it is possible to ameliorate these effects at the individual level with MBIs such as MBSR. Mindfulness practice has been shown to alter neural networks and brain morphology as well as to positively affect attentional control, emotion regulation, and self-awareness (Tang et al., 2015). These neurobiological changes, facilitated by MBSR, ultimately help to reduce the stress, burnout, and turnover that seems endemic in teaching.

This study conclusively shows that MBSR can reduce levels of self-reported stress, anxiety, and burnout among K-12 educators. Although the delivery method of the course was 100% virtual, the effects were comparable to, and in many instances greater than, the effects seen in previous studies using an in-person platform. The effects began at the midway point of the MBSR course. Along with decreased levels of stress, anxiety, and emotional exhaustion, greater incidences of mindfulness, the sense of personal accomplishment, and workload management and control were also evident.

MBSR is a valuable asset used to dampen the ultimate cost of burnout in educators, and this asset can be applied at the individual level as well as at the local, state, and federal levels. The effects of MBSR can definitively reduce the deleterious effects of stress, anxiety, and burnout among teachers while improving the overall well-being of K-12 educators.

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Appendix

Follow Up Survey Script and Questions for Weeks 0, 2, 4, and 6

Week 0 (before the first class):

Good morning, _____. It's hard to imagine that we are all about to start our school years. It's also the very beginning of the research project. Thank you for your participation in either the MBSR or the wait-list control group. Your efforts are appreciated. Please take a few seconds and answer the following questions via the link to a Google form. Again, thank you.

- 1) How stressed and anxious do you feel in your job? (0= none, 5= maximum)

0 1 2 3 4 5

- 2) How successful do you feel in your role? (0 = not successful at all, 5 = max success, I feel like a rock star!)

0 1 2 3 4 5

Week 2:

Good morning, _____. It's hard to imagine that we are already two weeks into our school year and into the research project. Thank you for your participation in either the MBSR or the wait-list control group. Your efforts are appreciated. Please take a few seconds and answer the following questions via the link to a Google form. Again thank you.

- 3) How stressed and anxious do you feel in your job? (0= none, 5= maximum)

0 1 2 3 4 5

- 4) How successful do you feel in your role? (0 = not successful at all, 5 = max success, I feel like a rock star!)

0 1 2 3 4 5

Week 4:

Good morning, _____. Congratulations on completing four weeks of school (and four weeks of our research project)! I hope this note finds you and your family well. We are halfway through the MBSR course, and I would appreciate your feedback on the

two survey questions linked below. Again, thank you for taking the time to participate in my project. I will reach out to you again in two weeks.

1) How stressed and anxious do you feel in your job? (0= none, 5= maximum)

0 1 2 3 4 5

2) How successful do you feel in your role? (0 = not successful at all, 5 = max success, I feel like a rock star!)

0 1 2 3 4 5

Week 6:

Good morning, _____. I hope this note finds you well. We are two weeks away from the completion of the research project, and I want to express my appreciation for your participation. Please take a few seconds to answer the two questions linked below. The next time I reach out to you it will be to finalize the project with five surveys that will only take 3-5 minutes each to complete. Again, thank you for your efforts.

1) How stressed and anxious do you feel in your job? (0= none, 5= maximum)

0 1 2 3 4 5

2) How successful do you feel in your role? (0 = not successful at all, 5 = max success, I feel like a rock star!)

0 1 2 3 4 5