

A Comparative Review of Research on Mindfulness in Pre/Post Covid-19 Education

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DOI: <https://doi.org/10.37745/bje.2013/vol11n3124>

Published February 11, 2023

Citation: Fu F., Haratyan F. and Yanling Z. (2023) A Comparative Review of Research on Mindfulness in Pre/Post Covid-19 Education, *British Journal of Education*, Vol.11, Issue 3, 1-24

ABSTRACT: *Mindfulness is a purposeful, non-judgmental method of focusing attention on the present moment including awareness, attention, and remembering. It cultivates the process of gradual mental development and is enriched by the concepts of acceptance, affirmation, self-reflection, non-evaluation, and sympathy. This profound, meaningful practice is universally healing, appropriate, and beneficial to mental health. Many researchers investigated its benefits in the education system for improving processes of teaching, learning, and interactions between teachers and students. This study applied a comparative, descriptive, integrative review to probe over thirty peer-reviewed published papers in credited journals found in search engines, concentrated on mindfulness in pre/post COVID-19 education. It manifested how this collection of research departed in their finding, application, recognition, implication, feasibility, and methodology employed. It concluded with the significance of mindfulness-based interventions in the post-COVID curriculum.*

KEYWORDS: mindfulness, education, COVID-19 pandemic, mental health, mindfulness-based interventions, curriculum

INTRODUCTION

During the COVID-19 pandemic, public health measures were implemented to prevent its deadly circulation. It has profoundly changed people's lifestyles and threatened physical and mental well-being. It causes extraordinary health, social and economic challenges (Bueno-Notivol et al., 2020). The rate of depression in the general population was approximately seven times higher than before the COVID-19 outbreak, which indicated the destructive impact of the COVID-19 outbreak on people's mental health (ibid). The coronavirus disease (COVID-19) pandemic has brought unprecedented psychological pressure on people across the entire globe (Li et al., 2021).

Factors such as sudden changes in plans for the immediate future, long duration of quarantine, fears of infection, inadequate information, stigma, or financial loss were related to the higher negative psychological impact. These significant factors increased the risk of psychological problems such as stress, anxiety, depression and frustration. Some studies found higher rates of depression, specifically among students. Poor mental health has been a growing concern among young people during the COVID-19 pandemic (Gavurova et al., 2022; Lei et al., 2020; Wang et al., 2021).

The young population is reportedly more vulnerable to uncertainty about the future of jobs, careers and economic crisis (Kazmi et al., 2020). They are also more exposed to social media and inaccurate information, which can generate immediate flooding of fear during the rapid spread of disease, independently of real risk (Ofri, 2009). Also, College students lack the ability and experience to self-regulate and self-rescue (Li et al., 2021). Their problematic internet use needs particular attention, as internet addiction is associated with other problems such as anxiety symptoms, depressive symptoms, and stress (Gavurova et al., 2022). All these factors above can contribute to higher rates of depression.

It is necessary to reduce mental health risks during the pandemic, especially the prevalence of psychological problems among college students. The mental health problems of college students during the COVID-19 pandemic have attracted the attention of researchers. Some online psychotherapy methods, such as telemedicine and self-help mindfulness therapy, are suggested to improve the psychological qualities of college students and alleviate their

mental health problems during the COVID-19 pandemic (Li et al., 2021). The concept of mindfulness has become known in the context of learning for alleviating psychological problems such as stress, depression and anxiety.

This study focused on mindfulness in the context of learning pre/post the COVID-19 pandemic. Most papers published before the COVID-19 pandemic were related to mindfulness, students and education concerning feasibility, effects, application, implication and implementation. Some others are about reconceptualizing education and curriculum. Ergas O et al. (2019) classified the former as "mindfulness in education" and the latter as "mindfulness as education." They found diverse stands and voices within the discourse of mindfulness in education. Our study expands the scope of previous reviews on mindfulness in pre/post-COVID-19 education.

A REVIEW OF MINDFULNESS

Mindfulness derives from Buddhist traditions. The renowned Vietnamese Buddhist teacher Thich Nhat (1999) describes mindfulness as "at the heart of the Buddha's teachings." It involves "attention to the present moment," which is "inclusive and loving" and "which accepts everything without judging or reacting" (p. 64). It lies at the core of Buddhist meditative practice, yet in the late 20th century Kabat-Zinn (1990; 1994) and associates reframed mindfulness as a psychological–clinical and secularized practice, transforming the original spiritual notion into a powerful and ubiquitous therapeutic tool based on forms of meditation and mindful practices. Kabat-Zinn (1990; 1994) defined mindfulness as the awareness that arises through paying attention, on purpose, in the present moment, non-judgmentally. Mindfulness nurtures greater awareness, clarity, and acceptance of present-moment reality. Kabat-Zinn (2005) observes that "mindfulness, which can be thought of as open-hearted, moment-to-moment, non-judgmental awareness, is optimally cultivated through meditation" and "its most elaborate and complete articulation comes from the Buddhist tradition, but its teachings and practices are very profound, very universally applicable, revealing and healing" (pp.25-26). Mindfulness has been transformed from near-anonymity towards the mainstream with its universal essence. It is not about believing the Buddhism notions but doing Buddhism's practice.

Oxford dictionary (2014) defines *mindfulness* as "a mental state achieved by focusing one's awareness on the present moment while calmly acknowledging and accepting one's feelings, thoughts, and bodily sensations." It defines *mindfulness* as the deliberate practice of paying careful attention to the present-moment experience without scrutiny and speculation via meditational training. Mindfulness is paying close attention to an object, leading to data retention to make sense of the information delivered by our cognitive apparatus. Mindfulness is a cognitive activity closely connected to memory, mainly working memory (Dreyfus, 2013; Hyland, 2015).

Mckay et al. (2007) considered mindfulness the ability to become aware of your current thoughts, emotions, physical perceptions, and actions without judging or criticizing yourself or your own experiences. It is associated with kindness, compassion, a broad mind and serenity.

Mindful Schools defined *mindfulness* as "maintaining a moment-by-moment awareness of our thoughts, emotions, bodily sensations, and surrounding environment with openness and curiosity." This is similar to the Psych Hub's definition of mindfulness "Mindfulness is the practice of acknowledging what you are feeling without judging the emotions or sensations as you are feeling them." Browning (2020) believes mindfulness is cultivating attention to foster greater self-awareness and self-knowledge about thoughts, feelings, and sensations and how they can affect one's actions. Weare and Huppert (2016) argue that mindfulness is the ability to be aware of our experience as it is happening while maintaining an attitude of openness, curiosity, and kindness.

Mussey (2021) defined *mindfulness* as the simple act or the art of paying attention with attention, including intentionally developing our personal and professional identities and remaining consistent in how we use our strengths in our work. His study focused on the secular therapeutic conception of mindfulness, which is bare attention and non-conceptual, non-judgmental awareness different from traditional Buddhist notions, including an awareness that is cognitive, discursive and goes beyond pre-conceptual bare attention to include the "perception of the body's repulsiveness, and mindfulness of death" (Hyland, 2015, p.3). Although the source of mindfulness training comes from Buddhism, it is essentially a process of self-awareness and exploration of body and mind, without any belief

or religious ceremony. This spiritual training without religious belief has abundant clinical and empirical research evidence and can also avoid spreading religious criticism. Compared with other meditation training with strong religious connotations, mindfulness is a better universal intervention to promote physical and mental health and spirituality development in elementary school education (Wen, 2013). To sum up, mindfulness includes three characteristics: paying attention to or being aware of surroundings, being present, and having a non-judgemental attitude. Its function, working processes, or mechanism embody another dimension of research.

Functions of Mindfulness

Research establishes mindfulness targets biological, psychological, social, and spiritual determinants of mental health and illness. Current progress in understanding the effects of mindfulness on attention, emotion regulation, and self-awareness is highlighted (Tang et al., 2015). Mindfulness can help strengthen inner peace, prevent stress, foster contagious joy and an ethic of altruism, and improve understanding and relationships (Rotne & Rotne, 2009). There is growing evidence for mindfulness's ability to impact aspects of cognition, including executive function, especially for those with difficulties in this area, as a study by Flook et al. (2010) demonstrates. This impact is potentially highly attractive to schools and universities. Mindfulness holds the promise of helping students train their attention, manage their thinking processes, reflect more deeply, and engage their increasingly distracted minds—all skills strongly associated with educational, personal and social effectiveness and well-being.

Tang et al. (2015) examine the beneficial effects of mindfulness training on these skills, which are crucial for success in school and life. Evidence that children with poorer executive functions may benefit most from mindfulness training is discussed in Flook et al. (2010) and explored in more detail in "Developing Cognition - Executive Function, Learning, Attainment, Reflection, Wisdom." Further, Bishop et al. (2004) suggest mindfulness promotes particular attitudes toward our experience, interest, openness, curiosity, acceptance, non-judgment, and kindness. These attitudes account for many benefits of mindfulness, particularly for mental health and well-being; for instance, curiosity encourages us to investigate whatever we are experiencing, even tricky sensations, thoughts, or feelings. Mindfulness can bring psychosocial well-being related to social and emotional

learning, self-regulation, and compassion. It can help with "problem" behavior, which is related to developing skills for learning, attainment, problem-solving, reflection and wisdom. Self-growth, social and emotional learning and contemplative education are the most common and related issues regarding mindfulness function.

Mindfulness and Self-Growth

Neuroimaging studies lend support to these proposed psychological mechanisms by showing that the practice of mindfulness can reliably change the structure and function of the brain, for example, in areas associated with decision-making and rational thinking, emotion regulation, learning and memory, kindness and compassion (Hölzel et al., 2011). Hölzel et al. (2011) found that mindfulness training is associated with an increased density of neurons in brain regions involved in learning and memory processes, emotion regulation, self-referential processing, and perspective-taking.

Vago and Silbersweig (2012) outline a theoretical framework for understanding how mindfulness may work at the psychological and neurobiological levels. This effect includes the development of attentional control-the ability to focus, maintain, and shift attention when we choose to. These processes are forms of self-regulation, a critical component of "executive function". Generally, higher-order executive functions such as reasoning, problem-solving, and planning are built via three core executive functions: working memory, cognitive flexibility, and inhibition.

Shonin and Van Gordon (2016) summarized ten unique and evidence-based mechanisms of mindfulness by drawing upon findings from various remits of scientific inquiry: structural brain changes, reduced autonomic arousal, perceptual shift, increase in spirituality, greater situational awareness, values clarification, increased in self-awareness, addiction substitution, "letting go" of negative emotional states before they dominate thought patterns and behaviors and urge surfing which means the process of an individual observing and not reacting to mental urge, which can regulate addiction-related craving better. As Shonin and Van Gordon (2016) described, mindfulness involves the ability, sometimes referred to as meta-cognition, to stand back from our experience and observe it rather than being caught up in it and identifying with it. This ability allows us to view our experiences objectively and make better choices. Meta-cognition is the ability to stand back from the thought process

and "think about thinking." It is essential to strategic thinking, problem-solving, and emotional self-regulation. Mindfulness is therapeutic by working on biological, psychological, social, and spiritual factors.

Mindfulness can help cultivate self-awareness, one of the core competencies of socio-emotional learning, along with self-management, social awareness, relationship skills, and responsible decision-making. Thus mindfulness must be the foundation of socio-emotional learning (Srinivasan, 2009). Weare (2019) emphasized a developing and convincing evidence base for the contribution of mindfulness to the broader field of socio-emotional learning and for its impact on social and emotional skills, such as self-awareness, emotional regulation, resilience, motivation, optimism, and persistence, sociability and the ability to make relationships. Mindfulness can cultivate open-hearted curiosity, kindness, and a broader sense of compassion and empathy for the self and others.

Neff (2003) contended that mindfulness is recognized as one of the three main components of self-growth, which can protect against the negative consequences of self-judgment, isolation, rumination, self-kindness, and shared humanity. He has shown that learning to accept in a kindly way what we are experiencing helps reduce self-judgment and self-criticism. An increase in self-compassion appears to be a vital mediator of the effect of mindfulness training on relapse prevention in depressed patients, as demonstrated by Kuyken et al. (2010).

Mindfulness in Socio-Reflective Education

Contemplative education is based on philosophical and educative reflection, theory and practice, grounded in various wisdom traditions. It aims to integrate introspection and experiential learning into academic study, to support academic and social engagement, the development of self-understanding, analytic and critical capacities, the skills for engaging constructively with others, and a sense of engagement, connectedness, purpose, and meaning. A critique of higher education generally inspires it as having lost sight of these broader and deeper aims in favor of a shallower and instrumental view of education as learning facts and preparation for the current workplace (Weare & Huppert, 2016).

Interest is growing in ways to integrate mindfulness into everyday organizational practices of classrooms in schools and universities, expecting to learn from educational implementation in other contexts, primarily social and emotional learning. CA social and emotional learning (2018) defined social and emotional learning as the process through which children and adults acquire and effectively apply the knowledge, attitudes, and skills necessary to understand and manage emotions, set and achieve positive goals, feel and show empathy for others, establish and maintain positive relationships, and make responsible decisions (Weare, 2019). Mussey (2021) explored eight practical principles of mindfulness linked to social and emotional learning through mindful practice in the classroom. He views love as the core of the principles leading to more self-awareness, self-regulation, social awareness, relationship building, and responsible decision-making. He suggested that teachers bring back the love to work to our students and colleagues. Teachers must learn how to love better and serve one another. He emphasized the importance of mindfulness, which can promote social and emotional learning competency development in the classroom and transform the learning environment, making spaces more positive and productive. It helps teachers, students, and others become more socially and emotionally competent.

Ergas and Hadar (2019) summarized two main patterns of mindfulness in education from 2002 to 2017: mindfulness in education and mindfulness in education. The former is characterized by effects-oriented, scaffolding education, and the latter by process-oriented integration in education. The former often focused on feasibility, effectivity, or cost-effectiveness and functions about well-being, physical and mental health, socio-emotional learning, academic performance, skills and cognitive functions, and education in the professions. In comparison, mindfulness as education is more focused on reconceptualizing education curriculum, functions about processes of teaching and learning, self-knowledge, transformative and life-long learning, education in the professions, critical pedagogy and social inclusion, and spirituality in education. The functions of teaching and learning processes did not focus on the effects of implementing mindfulness; but rather on curricular–pedagogical processes tied with the discourse of contemplative pedagogy.

There is a growing awareness of the importance of school ecology and ethos. Rotne and Rotne (2009) discussed the importance of creating environments that foster stillness, calm, kindness, connectedness, compassion and warmth. Mindfulness might contribute to

rethinking the core purpose and mission of education for the 21st century, rediscovering more holistic approaches and a sense of moral purpose. For example, Nhat Hanh and Weare (2017) suggest that education might enable learners to focus on the joy of the present moment, not just on the need to strive for future-oriented success. Mindfulness, the art of paying attention with intention, is a pathway to academic success. Mindfulness is paying attention that could make people more social and emotional learning, more socially aware, more compassionate, and possibly preventing devastating tragedies that have plagued our nation's schools and classrooms.

Mussey (2021) proposes that teachers use a mindfulness framework following the eight principles. This principle could help systematically develop social and emotional learning competencies to inspire learning.

Table 1: Mindfulness Principle and Their Essential Components (Mussey, 2021)

Principle	Essential Components
"I" work	Be true; be you. Know who you are. Motivate others and yourself.
Creativity	Creativity must be practiced and cultivated. Creativity takes time. Creativity is inclusive. Creativity takes courage.
Cultivating Connections	Be humble/ gentle/ patient/ peaceful. Practice empathy/compassion. Promote unity.
Writing	Writing is process and personal.
Breathing and Movement	Conscious breathing is slow/ deep/ rhythmic. Move first. Move for flexibility, stability, and strength.
Gratitude	Gratitude is simple. Gratitude builds health. Gratitude brings joy. Gratitude improves the strength of relationships.
Holding Space	The space belongs mostly to students. Holding space occurs in a positive classroom environment.
Commit-to-one	Commitment show what you believe/ what you value. Commitment opens doors and leads to success.

Besides the eight principles above, Mussey (2021) also provided the building blocks for five competencies and a proposal about mindfulness in the classroom to develop social and emotional learning for teachers and students.

In her paper, "Mindfulness in the Classroom: Mindful Principles for Social and Emotional Learning," Mussey (2021) contends that mindfulness in the classroom is about teachers' understanding and revealing their identities to inspire the students to have the courage to use their strengths in the classroom. Mindful teachers are empathetic, compassionate, and gentle in interacting and building relationships. They can use their imaginations to envision future social and emotional learning and also use this vision to support goal-setting and responsible decision-making. Mindfulness means self-awareness and attention to integrity. Mindfulness is about intentionally connecting with others and becoming more socially aware. Mindfulness uses metacognitive tools like writing, conscious breathing, bodies, and moving, regulating parasympathetic nervous systems and stress levels. Mindful teachers tune in when others support their work and respond in gratitude. Mindfulness is being aware and knowing when to hold space and when to intervene. Mindfulness is knowing that one step forward leads to commitment and success. Teachers must create a mindful movement toward social and emotional learning, balancing academic and social-emotional competencies. Social and emotional learning includes the human knowledge, skills, attitudes, and behaviors that enable people to find success and happiness. It is necessary for both personal and professional growth and achievement. For students, it is necessary for individual academic success and a positive classroom community and school climate.

In the paper "Teach, Breathe, Learn: Mindfulness in and out of the Classroom," Srinivasan (2009) focuses on teachers' mindfulness and offers techniques for cultivating loving-kindness, gratitude, and empathy. He introduces a curriculum teacher can use to incorporate mindfulness into their classroom, with lesson plans, handouts, and homework assignments. In "Learning to Breathe: A Mindfulness Curriculum for Adolescents to Cultivate Emotional Regulation, Attention, and Performance," Broderick (2013) provides a comprehensive and transparent manual for the evaluated "Learning to Breathe" curriculum. It begins with a succinct account of the research base for mindfulness and the broader work of social and emotional learning and is, after that, a step-by-step guide to teaching the curriculum in the classroom. It focuses on aspects of mindfulness that are most obviously of interest to

mainstream educators, including stress, emotional regulation, attention, and performance. It then moves on to include work on reflecting on learning, the body, and loving-kindness. Before 2019, mindfulness was employed in education to help students overcome stress, emotional regulation, attention, and performance. It later included reflections on social and emotional learning, social awareness, and compassion. After the COVID-19 pandemic, various studies have shown the applicability of mindfulness to treat mental problems associated with the COVID-19 outbreak, including loneliness, anxiety, and stress, a decrease in the cognitive performance of school and higher education students.

Application of Mindfulness in Educational System (Online/Offline)

In “Mindfulness-based online intervention increases well-being and decreases stress after Covid-19 lockdown”, Bossi et al. (2022) show the importance and effectiveness of online mindfulness training programs to cope with stress among employees, especially after the Covid-19 lockdown. He finds mindfulness-based training can increase well-being, including positive and cognitive reappraisal, and decrease negative affect, depression, anxiety, stress, insomnia, and expressive suppression. In “Feasibility of a brief online mindfulness and compassion-based intervention to promote mental health among university students during the COVID-19 pandemic”, González-García et al.(2021) suggest that a brief online mindfulness and compassion intervention may be a feasible way of promoting mental health among university students during COVID-19 lockdown, and conclude that online interventions may constitute a promising pathway to buffer the mental health burden derived from the COVID-19 pandemic. In “The future of mindfulness training is digital, and the future is now,” Mrazek et al. (2019) contend that digital mindfulness-based interventions (d-MBIs) like Smartphone applications and web-based platforms can offer potential advantages over traditional face-to-face formats through enhanced accessibility, standardization, personalization, and efficacy of mindfulness training. A digital approach to teaching mindfulness can improve measures of attention, stress, depression, anxiety and well-being. Although there are a variety of challenges, such as the possibility of low engagement, shallow learning, obstacles or frustrations, they can be overcome through best practices providing strategies for these challenges.

In “Mindfulness and other simple neuroscience-based proposals to promote the learning performance and mental health of students during the COVID-19 pandemic”, Tortella et al.

(2021) present a general overview of the reported adverse effects of the COVID-19 pandemic, which may potentially influence the learning performance of students. He emphasizes that The COVID-19 pandemic has harmed the psychological well-being of teachers and students and education since the COVID-19 pandemic causes adverse effects such as loneliness, anxiety, and stress, which have resulted in a decrease in the cognitive performance of the school and higher education students. The results showed that a combination of trauma-informed training and mindfulness practice significantly decreased emotional exhaustion in teachers, improving their self-efficiency and personal achievement. In "Mindfulness practice for protecting mental health during the COVID-19 pandemic", Zhu et al. (2021) propose interventions to alleviate the psychological impact of the pandemic. They found lower scores of pandemic-related distress in mindfulness practitioners compared to non-practitioners. In general, older participants showed fewer symptoms of depression and anxiety. In younger practitioners, pandemic-related distress decreased from peak to follow-up. They suggest that if implemented effectively, mindfulness-based interventions might be the low-cost option to safeguard public mental health at times of crisis like the current COVID-19 pandemic. Different opinions are put forward when discussing whether mindfulness instruction should be incorporated into the curriculum at all levels of formal education, even online, to help students succeed academically. Generally, before COVID-19, mindfulness education was conducted in person. However, after COVID-19, mindfulness education is held online. The application of mindfulness in education can significantly impact students' learning and teachers' teaching, another topic that needs attention and discussion.

Impacts of Mindfulness on Learning and Teaching

In the paper "Mindfulness and Student Success," Matt Leland (2015) argue that mindfulness education is helpful in some specific ways: minimizing the impact of bullying, helping students with learning disabilities, benefiting students who are training in careers with high emotion and stress, and coaching. Mindfulness affects student success, including general learning skills that affect academic performance, critical thinking skills, behavior and self-control, and job-specific skills developed in graduate and professional degree programs. Based on the results, students with mindfulness incorporated into their curriculum could reap academic and personal benefits. Mindfulness training can be valuable for helping

students be more successful learners and more connected members of an educational community.

Mindfulness has been shown to positively change students' stress levels, attention, empathy, and self-control, consistent with anecdotal reports (Comstock, 2015). In the paper, "Evidence for Mindfulness: Impacts on the Well-being and Performance of School Staff," Weare, Katherine (2012), through a narrative review of 13 studies, summarizes the apparent impacts of mindfulness on a wide range of indicators of mental and physical health in school staff, including stress, well-being, and life satisfaction, kindness and compassion to self and others, attunement to students' needs, personal effectiveness, cognitive performance, and job performance. In the paper "Three Timely Tools for Promoting First-Year Student Success During & After COVID-19: Positive Psychology, Mindfulness, & Self-Compassion", Cuseo and Figueroa (2020) contend that facing the COVID-19 crisis is further elevating students' stress levels by increasing their sense of social isolation and restricting their access to usual sources of socio-emotional support. A growing body of scholarship points to the efficacy of three self-regulatory tools: positive psychology, mindfulness, and self-compassion. Mindfulness can be used as a self-regulatory tool to help students to bolster their emotional and psychosocial capacity to thrive in college and deliver mental health and wellness education to incoming students.

In the paper, "Mindfulness in the College Classroom and Wellness Promotion: The Impact of Mindfulness Curriculum on self-Reported Health and Well-Being in University Students.", Gray (2021) investigated the effects of an undergraduate course offering a mindfulness skill development curriculum. The students' self-assessments at the beginning and end of the semester focused on perceived stress, mindful awareness, resilience, procrastination, self-compassion, and sleep quality. The findings revealed significant reductions in perceived stress levels and procrastination and increased self-compassion, mindful awareness, and sleep quality. He found no significant differences when accounting for whether the course was completed online or in a traditional classroom format, except for the procrastination and self-compassion scores. Offering an effective skill development curriculum to students that supports multiple dimensions of their health and well-being is an increasingly critical aspect of student support. The results of his paper also suggest some valuable insight toward the future development of higher education models to support a

healthier emerging adult population that can thrive in college and is better prepared for life after college.

Hawkins (2017), Jennings (2015), Nhat Hanh and Weare (2017) reflect a strong theme running through much of the guidance literature, which is the essential need for the teacher to practice mindfulness themselves if they are to experience improvements in their well-being, deepen their abilities as teachers, be practical and credible mindfulness teachers and to create prosocial environments where all may thrive. The guidance outlines the potentially transformative effect of mindfulness on teaching tasks, such as deepening the relationship with students through a greater sense of authentic presence and empathy, putting the learner at the heart of teaching and learning, and encouraging students toward social and emotional learning self-knowledge. Jennings (2015) combines an academic base and solid research experience in neuroscience, psychology, and education with applied mindfulness teaching and program development. He focuses mainly on the teacher's mindfulness, suggesting the principles for managing classroom stresses, cultivating the learning environment, and applying mindfulness in classrooms. In the paper "Teaching Mindfulness to Teachers: A Systematic Review and Narrative Synthesis. Mindfulness", Emerson et al. (2017) gives the first systematic review based on 13 studies. He concluded that Mindfulness-Based Interventions significantly impact anxiety and depression, burnout, stress, physical symptoms, sleep, time pressure, sense of accomplishment, and satisfaction with life. The authors hypothesized that improved emotion regulation lay behind these shifts. This effect is a helpful result for teachings to apply in teaching. Schoeberlein et al. (2009) focused on how teachers can tune into what is happening inside and around them to plant the seed for an education infused with attention, awareness, kindness, empathy, compassion, and gratitude. It guides mindfulness to "teachers' of all kinds, including parents and coaches, and follows school teachers through their day.

Mindful education in the professions commonly focused on health care and service-oriented professions, including teaching, practicing law, nursing, social work, and consulting, primarily focused on teachers' teaching. Impacts always accompanied this category on socio-emotional competencies in teaching. Mindfulness is not only about the understanding of the practice as a means for supporting education but also working as a part of the educational process implemented by lecturers, teachers, and school staff, framed primarily

within Buddhism, wisdom traditions, and epistemology, and its framing in education revolved mainly around teaching and learning processes, self-knowledge transformative and life-long learning, critical pedagogy and social inclusion and education in the professions (Ergas & Hadar, 2019).

METHODOLOGY

The current project proposed an integrative review of the scientific research on mindfulness in education. The essential task of this synthesis was to integrate significant aspects and themes found in the related literature to expand the scope of previous studies that focused on limited domains. Applying a content-based textual and descriptive approach, this study aimed at two comparative depictions of before and after COVID-19 research findings in definition, functions, intervention, implementation, and implication regarding issues concerning mindfulness applied in learning and teaching in educational contexts. Thirty scientific peer-reviewed articles were selected from electronic search engines like Google Scholar and Science Direct. The papers solely published in credited journals focused on the concept of mindfulness before and after Covid-2019. This review paper is a map of how mindfulness is identified, discussed, and applied in an interpretive manner that stems from and leads toward a more grounded understanding of what is currently happening in the field as it emerges from research.

ANALYSIS AND DISCUSSION

The following research is about mindfulness in Education Papers before and after COVID-19. By comparing the keywords or topics, some findings will come out.

Table 2: Mindfulness in Education Papers before and after COVID-19

	post COVID-19	pre COVID-19
1	Wang et al. (2021). Anxiety, depression, and stress prevalence among college students during the COVID-19 pandemic: A systematic review and meta-analysis.	Leland (2015). Mindfulness and Student Success . Journal of Adult Education.
2	González et al. (2021). Feasibility of a brief online mindfulness and compassion-based intervention to promote mental health among university students during the COVID-19 pandemic.	Hyland (2015). On the Contemporary Applications of Mindfulness: Some Implications for Education .
3	Mrazek et al. (2019). The future of mindfulness training is digital , and the future is now.	Srinivasan (2009). Teach, Breathe, Learn: Mindfulness in and out of the Classroom . Berkley, California: Parallax.
4	Tortella et al. (2021). Mindfulness and other simple neuroscience-based proposals to promote the learning performance and mental health of students during the COVID-19 pandemic.	Weare (2019). Mindfulness and contemplative approaches in education .
5	Zhu et al. (2021). Mindfulness practice for protecting mental health during the COVID-19 pandemic.	Wen (2013). A Review of Mindfulness Education in the West: Towards the Integration of Mindfulness Training into Education in Taiwan.
6	Widha et al. (2021). A review of mindfulness therapy to improve psychological well-being during the COVID-19 pandemic.	Ergas, O., & Hadar, L. L. (2019). Mindfulness in and as education : A map of a developing academic discourse from 2002 to 2017.
7	Li et al. (2021) self-help mindfulness therapy are suggested to alleviate the mental health problems of college students during the COVID-19 pandemic	Ofri (2009) fear disease

8	Bossi et al. (2022). Mindfulness-based online intervention increases well-being and decreases stress after Covid-19 lockdown.	Shonin et al. (2016). The mechanisms of mindfulness in the treatment of mental illness and addiction.
9	Gray (2021). Mindfulness in the college classroom and wellness promotion: the impact of mindfulness curriculum on self-reported health and well-being in university students.	Nhat Hanh,T., & Weare, K. (2017). Happy Teachers Change the World: A guide to cultivating mindfulness in education. Weare (2014). Evidence for mindfulness. Impacts on the wellbeing and performance of school staff.
10	Gavurova et al. (2022) Mindfulness can help with the problem of higher rates of depression	Weare and Huppert (2016) Mindfulness is the ability to be aware of our experience as it is happening while maintaining an attitude of openness, curiosity and kindness.

Publications during 2002-2017 mainly fall within the predominating framing—well-being, physical and mental health, commonly began with theoretical background, which depicted school/universities/colleges as stressful environments. Stress can affect diverse aspects of students' and teachers' lives, including student-teacher relationships, academic performance, behavior and mental/physical health, teacher burnout, anxiety, and sleep loss. The second prominent framing of mindfulness in education was socio-emotional learning. The third framing of self-knowing, transformative, and life-long learning stressed mindfulness's role as a practice involving introspection applied toward exploring ethics, subjectivity, identity, morality, a sense of purpose, and agency (e.g., Holland, 2004). The fourth was the framing of academic performance, skills, and cognitive functions, which applied explicitly to

executive functions and often focused on attentional skills and their associations with academic performance (Ergas & Hadar, 2019).

Table 3: Mindfulness in Education before and after COVID-19

	before COVID-19	after COVID-19
Components of definition	attention awareness judgmentally social relationships	paying attention on purpose, in the present moment, non-judgmentally to the unfolding of experience moment by moment
Functions of mindfulness	developing social and emotional learning competence, self-growth, benefiting teaching and learning	adverse effects such as loneliness, anxiety, and stress, which have resulted in a decrease in the cognitive performance of school and higher education students caused by the COVID-19 pandemic
Application of mindfulness	mindful practice in Offline classrooms, avoiding "McMindfulness", "hype" around mindfulness, mindfulness approach in education is a process that cannot be hurried,	mindful education practice out of classrooms, Digital approaches offering potential advantages over traditional face-to-face formats through enhanced accessibility, standardization, personalization, and efficacy of mindfulness training, overcoming the online challenges regarding engagement and learning

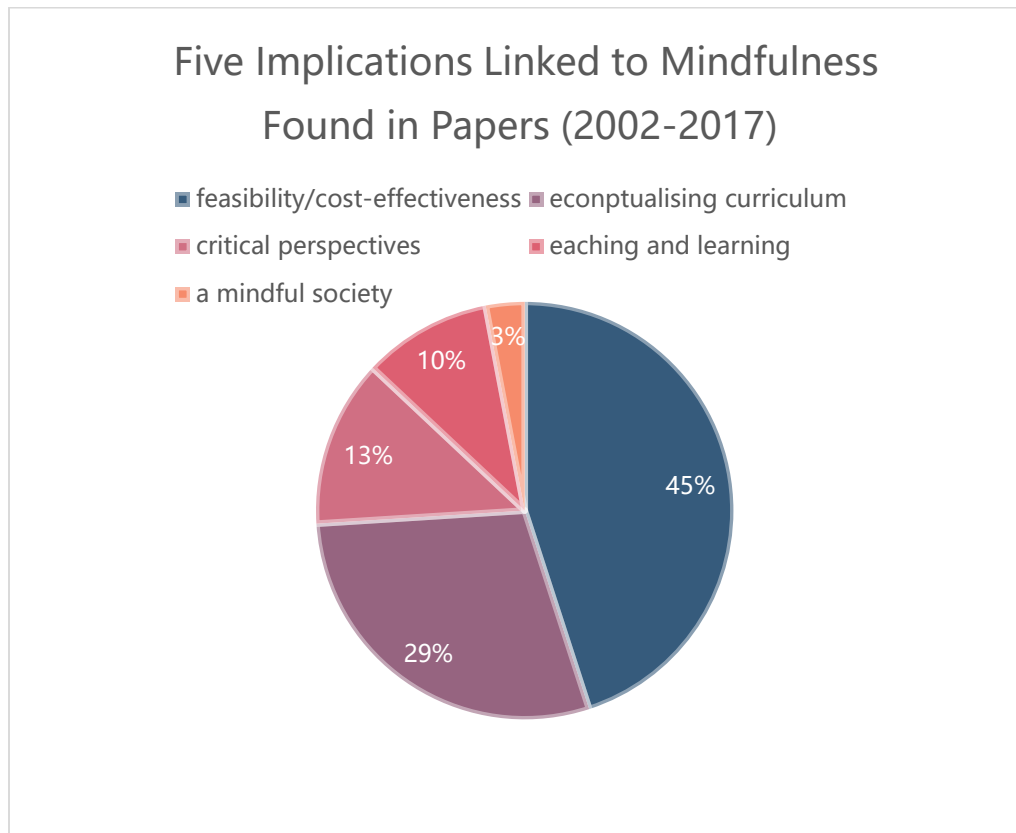


Figure 1: Five Implications Linked to Mindfulness Found in Papers (2002-2017) (Ergas & Hadar, 2019)

Ergas and Hadar (2019) also found five implications linked to the framing of mindfulness in education and the type of implementation. The most common implications concerned mindfulness's feasibility/ effectivity and cost-effectiveness in education. Some implications concerned with reconceptualizing education/curriculum involved moderate to radical critique of current curricular–pedagogical practice. There are implications associated with critical perspectives on mindfulness, including implementation considerations, effects of the practice, and a critique of the ethics of mindfulness in the curriculum and its future. There were implications in the teaching and learning domain that discussed the broader pedagogical potential of mindfulness practice when integrated into the teaching of subject

matter, skills, and values. A small group discussed a mindful and healthy society, offering statements associated with the broader effects of mindfulness in education for society. Mindfulness has always been a hot issue, whether pre or post-COVID-19. The differences mainly exist in the applications of mindfulness, which are related to its functions.

CONCLUSION

This study found that before COVID-19, mindfulness education/ learning was about helping with students' stress levels, attention, empathy, and self-control. Mindfulness education proved helpful in minimizing the impact of bullying, helping students with learning disabilities, benefiting students training in careers with high emotion and stress, and coaching. Mindfulness affects student success, including general learning skills that affect academic performance, critical thinking skills, behavior and self-control, and job-specific skills developed in graduate and professional degree programs. In contrast, after COVID-19, the findings revealed significant reductions in perceived stress levels and procrastination and increased self-compassion, mindful awareness, and sleep quality. Students' stress was intensified due to their increasing sense of social isolation and restricting their access to usual sources of social and emotional support and socio-emotional learning through mindful practice in the classroom. Various research also focused on the positive effects of online mindfulness education on mental problems caused by the COVID-19 pandemic.

ACKNOWLEDGEMENTS

We acknowledge the financial support by the Doctor of Suzhou University Scientific Research Foundation Project (2021BSK032).

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