frontiers | Frontiers in Education

TYPE Original Research
PUBLISHED 30 August 2022
DOI 10.3389/feduc.2022.954098

OPEN ACCESS

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SPECIALTY SECTION
This article was submitted to Teacher Education, a section of the journal Frontiers in Education

RECEIVED 27 May 2022
ACCEPTED 05 August 2022
PUBLISHED 30 August 2022

CITATION
Carroll A, Hepburn S-J and Bower J (2022) Mindful practice for teachers: Relieving stress and enhancing positive mindsets.
Front. Educ. 7:954098.
doi: 10.3389/feduc.2022.954098

Mindful practice for teachers: Relieving stress and enhancing positive mindsets

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Objectives: The present study aimed to determine the degree of stress relief and increase in mindfulness attributes experienced by 18 participants in an 8-week Mindful Practice for Teachers (MPT) program.

Methods: The mixed-methods study design included participant reflections collected throughout the study and self-report measures: Perceived Stress Scale (PSS), Positive Mindset Index (PMI), and Five Facets of Mindfulness Questionnaire (FFMQ).

Data analysis: Pre- and post-program paired-samples *t*-tests were completed for the self-report measures. Inductive coding was completed for the participant reflections.

Results: The participants (N = 18) reported a significant decrease in perceived stress pre-program and post-program. The significant changes in the sub-scales of the FFMQ were reported for *observing*, *non-reaction*, and *non-judgment* pre-program and post-program. A statistically significant change was reported for the PMI sub-scale *stability* which increased post-program. According to participant reflections, there was an increased awareness of the physiological response during positive and challenging events/incidents. The participants reported positive satisfaction pertaining to program materials, exercises, and activities.

Conclusion: Findings indicated that the participants experienced a decrease in their perceived level of stress and an increase in their mindfulness attributes consequently highlighting the benefits of mindfulness-based programs for teacher stress management. The MPT program may prove to be a positive intervention for managing work-related stress and providing teachers with simple, stress management resources.

KEYWORDS

mindfulness, education, stress management, teaching, teacher wellbeing, teacher health, stress

Introduction

Caring professions such as teaching are often associated with burnout and emotional exhaustion (Brouwers and Tomic, 2000). Teachers are often required to problem solve and provide pastoral care addressing varied and complex emotional situations (Pyhältö et al., 2011). Increased accountability, work intensification, the extension of the working day into personal time and student behavior concerns can also challenge teacher wellbeing (Day and Oing, 2009). The interpersonal nature of teaching can result in a high degree of social-emotional labor where teachers need to regulate their emotions with others (Noor and Zainuddin, 2011). These social emotions, combined with a high workload can be emotionally taxing and result in burnout due to work-related stress (McCallum and Price, 2010). A growing body of research focuses on teacher wellbeing and addressing work-related stress and burnout. In a pre-COVID study of Australian teachers (N = 749) the findings indicated 55% (n = 413) respondents felt teaching was very or extremely stressful and 59% (n = 437) had considered leaving the profession. Thoughts about considering leaving the profession were classified as moderately or extremely serious by 75% (n = 328) of those who had considered leaving (Carroll et al., 2022). Recent research similarly details the lived experiences of teachers in Australia and highlights systemic, organizational, relational and interpersonal stressors (see Carroll et al., 2021a).

The COVID-19 pandemic has had serious ramifications for education systems worldwide from early childhood education (e.g., Eadie et al., 2021) to secondary and primary sectors (see Reimers, 2022). It was expected that educators seamlessly shift to remote teaching (Lambert and Schuck, 2021). In reality, the rapid change to learning remotely during periods of lockdown resulted in emergency remote teaching rather than online learning. When periods of emergency remote teaching are required, the responsibility shifts to the teachers and with minimal support provided by the Information Technology teams which would occur when online learning is prepared and developed (Azevedo et al., 2020; Hodges et al., 2020). In an online survey of teachers from Australia (n = 2,373) and New Zealand (n = 1,183) in April 2020, teachers raised concerns with unfamiliar teaching methods and technologies (e.g., Zoom and Skype), isolation from colleagues and students and fears for their students' psychological welfare (Flack et al., 2020). The teachers shared that they had lost confidence in their ability to cater for 30 students in a virtual classroom as well as less connection with their students.

A teacher's wellbeing is dependent on the circumstances, school environment and their psychological, cognitive, and emotional resources (Day and Oing, 2009). The contextual factors, including the school and classroom context, influence a teacher's degree of job satisfaction, work-related stress, and intent to leave the profession (Travers, 2017). Relationships with students are ranked as one of the important sources of enjoyment and motivation for teachers (Spilt et al., 2011). However, dealing with student misbehavior and disciplining students is repeatedly reported as a stressor for teachers (Skaalvik and Skaalvik, 2010; Lambert et al., 2015; McCarthy, 2019). Student behaviors influence job satisfaction and intent to leave the profession experienced by teachers (Skaalvik and Skaalvik, 2010; Hughes, 2012; Liu and Onwuegbuzie, 2014). A positive teacher-student interaction creates a classroom environment where students feel safe, valued, and supported, therefore reducing disruptive behavior and disciplinary measures (Roeser et al., 2013). A teacher's social-emotional competence and general wellbeing influences the classroom environment they create, how students learn, behavior management strategies implemented, and ultimately, student's social, emotional, and academic outcomes (Flook et al., 2013). As McCallum and Price (2010) identified, teachers must be well themselves to have a positive impact on their students' wellbeing. Motivated, engaged teachers positively impact on student behavior and student-teacher interactions. Teacher wellbeing is seen to have an indirect impact on students' socioemotional adjustment and academic performance (Spilt et al., 2011).

It is argued that improved health and wellbeing among teachers through the inclusion of mindfulness-based interventions leads to greater occupational engagement and job satisfaction, lower rates of burnout, absenteeism, and intent to leave the profession (Jennings, 2011; Soloway et al., 2011; Flook et al., 2013; Skinner and Beers, 2016). Teachers are at the heart of creating supportive learning environments for students, and they need to be equipped with the skills to care for themselves and their students (Howard and Johnson, 2004; Lindqvist et al., 2017). The present study aimed to develop a mindfulness-based program in consultation with Australian teachers. The program was developed to encourage emotion awareness and regulation using mindfulness, reflective practice, and social interaction with colleagues. It was hypothesized that there would be a change in how mindfully teachers interacted with the students, how they dealt with stressful situations in the classroom and their levels of perceived stress. Specifically, the following research questions were posed: 1. Does participating in an 8-week (6-h) mindfulness-based program (Mindful Practice for Teachers program, MPT) influence measures of perceived stress, mindfulness, and positive mindset for teachers? 2. How do the reflections shared by the participants relate to the self-report measures for perceived stress, mindfulness and positive mindset?

Background

Competency, autonomy, and belonging

The impact of job demands (stressors) on work-related outcomes and wellbeing is dependent on how an individual internalizes the experience (Maslach and Leiter, 2008). Satisfaction of psychological needs and improving physical wellbeing can be increased or encouraged when an individual is able to pursue intrinsic goals, and experience a sense of competence, autonomy, and relatedness or connectedness with others (Ryan et al., 2008).

Competence is a core element in motivation and includes feelings of mastery and efficiency. It depends on and influences the context and interpersonal factors (Ryan and Deci, 2017). For teachers, competence is gained through the development of professional knowledge, often identified as either: content knowledge, pedagogical knowledge, or developmental knowledge (Roeser et al., 2012). These authors propose that professional dispositions or habits of mind (listed below) are an additional domain of professional knowledge linked to effective teaching and focus on developing strategies to navigate challenging situations (Roeser et al., 2012). Professional dispositions, as outlined by Roeser and colleagues, include the foundation principles of mindfulness training.

Feeling autonomous is closely related to self-efficacy. Work-related stress can influence a teacher's belief in their ability, self-efficacy, and classroom management instruction (Hughes, 2012). Self-efficacy determines how a teacher manages their classroom and the classroom climate they create (Martin et al., 2012; Aloe et al., 2014). There is a bidirectional relationship between student behavior and teacher self-efficacy (Shirom et al., 2009); that is, the environment established by the teacher influences student behavior and a teacher's self-efficacy is influenced by student behavior—the two are interconnected and dependent on each other. Similarly, perceived competence is influenced by the sense of autonomy experienced. Intrinsic motivation will not improve if competency is not supported by autonomy, and the individual must view their behavior as self-determined (Ryan and Deci, 2017). Mindfulness-based approaches provide an opportunity for teachers to understand stressors and potential strategies for managing stress (McCarthy, 2019).

Positive relationships with colleagues and students foster a sense of connectedness to others. Being attuned to context-specific demands, maintaining a stable emotional state, fostering positive personal interactions, and a sense of belonging also contribute to teacher wellbeing (McCallum and Price, 2010). As outlined by Kabat-Zinn (1991), mindfulness is about relationality, interconnectedness, and connection with others. Resilient teachers seek support from mentors or colleagues to discuss challenging situations (Howard and Johnson, 2004). It is theorized that supporting autonomy, competence and belonging can influence behavior and motivation in the short- and long-term, contributing to self-determined and motivated behavior in immediate situations and promoting resilience and positive psychological wellness long-term (Ryan and Deci, 2017).

In their review of the Transactional Model of Stress and Coping, Spilt et al. (2011) outline the importance of the teacher-student relationship explaining that the teacher's mental representation of their relationship with their students impacts how an incident is viewed, internalized and the emotional response that is triggered (Spilt et al., 2011). However, when teachers feel burnt out, undervalued and the job demands exceed their means, they are less likely to invest energy and time into their students (Sharp and Jennings, 2016). Providing teachers with mindfulness strategies to regulate their emotions can improve their ability to deal with various stressful conditions (Gold et al., 2010) and improve teacher-student interactions (Sharp and Jennings, 2016). Where students experience the downstream effects of self-regulated teachers with high levels of wellbeing, they are more likely to develop social and emotional competence (Osher et al., 2020; Carroll et al., 2021b).

Learning social and emotional competence skills is important for many reasons, including improvements in attitudes toward self and reducing antisocial behavior and emotional distress (Durlak et al., 2011). Research by Durlak and colleagues, who conducted a meta-analysis of 213 studies involving more than 270,000 students, found that where students had participated in evidence-based social and emotional learning program, there was an 11% increase in standardized achievement test scores (math and reading) compared to students who did not.

Mindfulness-based approaches to wellbeing

Mindfulness is a practice founded in the Buddhist tradition dating back 2,500 years and is referred to as "cultivating awareness of the mind and body living in the here and now" (Siegel et al., 2009; Stahl and Goldstein, 2010). Mindfulness is often referred to as attending to the present moment with non-judgment (Kabat-Zinn, 1994) and self-regulation of attention toward one's experiences (Moore and Malinowski, 2008). The original 8-week Mindfulness-based Stress Reduction (MBSR) program was developed for clinical applications for pain management by Kabat-Zinn in the early 1980s. Meditation is the process of directing attention at will. The two forms of meditation practiced in the MBSR are Focused Attention (FA) meditation where the attention is directed toward the breath or bodily sensations and Open Monitoring (OM) where attention is directed toward observing the thoughts that occur in the mind (Jindal et al., 2013). Mindfulness meditation has been linked to improvements in cognitive

flexibility (Moore and Malinowski, 2008; Chiesa et al., 2011), attentional stability (Zeidan et al., 2010; Hölzel et al., 2011), self-regulation, and meta-awareness (Gard et al., 2014). Kabat-Zinn (2003) defines yoga as "mindfulness in motion" and attention focused on the breath with deliberate, careful postures. Yoga has been shown to improve one's ability to be mindful. Attention is directed to moment-by-moment awareness of the body and consideration of thoughts that arise (Salmon et al., 2009). In addition, yoga assists with physical health and psychological balance by enhancing the activation of the parasympathetic nervous system through slow movement and diaphragmatic breathing which stimulates the vagus nerve (Brown and Gerbarg, 2005; Porges, 2007). Additional physiological mechanisms of mindful movement include reduced metabolic functioning, improved respiratory and neuromuscular function (Khalsa, 2007; McCall, 2007; Pascoe et al., 2017).

Since the development of the MBSR program, mindfulness-based interventions (MBIs) have been developed to target a wide variety of conditions with many clinical applications documented (Chaskalson, 2011; Ivtzan, 2016) and in education (Hwang et al., 2017). In many cultures, meditation and mindfulness have been used as a form of stress relief (Anderson et al., 1999) and as complementary alternative medicine (McCall et al., 2013; Khalsa et al., 2016).

Strategies to nurture teacher wellbeing

The concept that wellbeing can shift and change (or pivot) is presented by Dodge et al. (2012) when referring to a stable state of wellbeing when there is a balance between physical, psychological and social resources needed to meet the various social, psychological, or physical challenges faced by individuals.

A crucial strategy for teacher wellbeing is providing a safe and supportive space and environment for teachers to interact with each other. Providing teachers with the opportunity to address concerns, connect with others, and manage stress may reduce burnout (Flook et al., 2013). The quality of social interaction between staff and community in schools is also important for teacher wellbeing (Maslach and Leiter, 2008). Buchanan et al. (2013) indicate that the positive experiences of early career teachers are linked to mentoring, collaboration, professional reflection, and partnerships between the universities and schools to facilitate professional learning. Buchanan et al. (2013) outline that the quality of collegial support provided to early career teachers can boost morale and provide new insight, knowledge, and modeling of how experienced teachers cope with the job's demands. The ability to manage teaching is influenced by the quality of mentoring and collegial support provided.

Schools are complex environments where the interplay between job demands and job resources can vary from day to day. A professional, proactive, and participative approach from the school leadership, effective communication between staff, positive classroom and school climate contribute to the school culture. Similarly, creating shared goals, unity of purpose, consistency of practice, collegiality, and collaboration contribute to a positive school climate (James et al., 2006). School approaches to teacher wellbeing must differentiate enabling and inhibiting strategies (McCallum and Price, 2010). Professional learning communities support teacher wellbeing, assist with the development of new skills, provide collegial support, and increase experimentation with new pedagogy (Owen, 2016). A teacher's sense of belonging in the school community and involvement in policy influence work-related stress and job satisfaction (Skaalvik and Skaalvik, 2010; Hughes, 2012).

A second important strategy for teacher wellbeing is to provide planned systematic and relevant professional learning that builds knowledge, strategies, and skills around self-care and its physiological and psychological effects. It is argued that teachers need to be provided with the opportunity to develop professional knowledge in self-care and develop "habits of mind" (Roeser et al., 2012). The habits include mindfulness attitudes such as non-judgment, empathy, compassion, and detachment from emotionally charged thoughts. These habits provide teachers with the ability to regulate the emotions they experience. Thus, an improved ability to deal with challenging student interactions can reduce feelings of frustration, anxiety, and stress (Roeser et al., 2012).

Supportive colleagues and professional knowledge have a flow-on effect to students. Jennings et al. (2013) found a significant link between a teacher's psychological characteristics and the classroom climate they create. Depressive symptomology has been negatively correlated to classroom climate and instructional support, whereas depersonalization, self-compassion, and mindfulness attitudes were positively correlated (Jennings et al., 2013). Engaging in self-directed mindfulness through practicing the mindful attitudes of non-judgment and self-kindness, promotes resilience (Roeser et al., 2022). Roeser et al. (2022) examined the near- and long-term impact of mindfulness training for middle school teachers identifying changes in classroom organization, self-reported anxiety, and job stress. Resilient teachers frequently adopt coping strategies involving direct action to reduce and manage stress, such as seeking support from colleagues, depersonalizing stressful events, engaging in relaxation and selfcare activities and developing new knowledge or skills and work practices (Kyriacou, 2001; Howard and Johnson, 2004). These techniques foster resilience resulting in reduced work-related stress.

Mindfulness training for teachers

Mindfulness training programs provide teachers with the skills to self-regulate and manage emotions (Flook et al., 2013) and increase compassion toward students (Gold et al., 2010). Mindfulness training programs can provide teachers with a

supportive space to share their experiences with colleagues (Roeser et al., 2012, 2022) fostering connectedness and belonging. Practicing mindfulness techniques allow teachers to reassess stressful situations (Jennings et al., 2013) and respond rather than react in the classroom through planned and systematic knowledge and skills for wellbeing. This fosters autonomy and competence. Mindfulness improves teachers' ability to reduce stress, emotional reactivity and negative appraisals of self, others, and classroom situations. Resilience and classroom effectiveness are promoted through practicing mindfulness and selfregulatory approaches (Roeser et al., 2012). It is suggested that teachers can rethink their habitual responses and reactions when appraising situations, in particular, student behavior and mindfulness promotes compassion and reduces patterns of self-blame (Skinner and Beers, 2016).

Over the past 30 years there has been a rapid growth in MBIs for educators. An early example by Anderson et al. (1999) investigated the benefits of a 5-week Standardized Meditation program which was based on the programs from the American Meditation Society. The results indicated a decrease in the stress and anxiety experienced by the high school teachers (N = 91) in the program. The MBSR program has been included in school settings, for example, primary school teachers (N = 9) experienced a reduction in stress and an increase in mindfulness attitudes scores (Gold et al., 2010). Hwang et al. (2019) trialed the MBSR program with 185 educators at 20 Queensland schools. The findings from the modified Mindfulness-based Stress Reduction (mMBSR) program designed by Flook et al. (2013) (N = 18) suggested educators experienced an increase in mindfulness attitudes (self-compassion), reduction in psychological symptoms of burnout and stress, and increased effective teaching behaviors. Similarly, Frank et al. (2016) explored an 8-week modified MBSR program for educators with a reduction in contact time.

Jennings et al. (2013) reported that a 30-h Cultivating Awareness and Resilience in Education (CARE) program delivered over 4–6 weeks positively affected teachers' sense of wellbeing, self-efficacy, burnout/time pressure and mindfulness. A recent study evaluating the CARE program (Jennings et al., 2017) included mindful practices, breath awareness, mindful walking, compassionate listening, and gentle stretching (N = 224). Similarly, the Stress Management and Relaxation Techniques in Education (SMART) program (Roeser et al., 2013; Taylor et al., 2015) supports the argument that mindfulness-based techniques may prove beneficial for educators (N = 58). The SMART program is a 36-h program including mindfulness-based techniques (e.g., guided meditation, focused attention meditation (FA), reflections and group discussion specifically designed for educators). More recently, the Mindfulness-Based Emotional Balance (MBEB) program for middle-school teachers focused on self-compassion, quality of interactions with students in stressful classroom situations, occupational health, and wellbeing (Braun et al., 2020; Roeser et al., 2022).

The Community Approach to Learning Mindfully (CALM) program was specifically designed for educators, however, the format included 64 intervention sessions (20-min in length) held over 16 weeks (Harris et al., 2016). See Hwang et al. (2017) for a systematic review of MBIs for educators. While these programs have proven successful in many countries, Australian teachers have been less likely to participate, predominantly around time and commitment constraints.

Mindfulness is a relevant and effective tool for assisting teachers to manage their stress and enhance wellbeing, with positive flow-on effects to students, with the ability to create a positive classroom climate through mindful student-teacher relationships being a crucial factor in student learning (Jennings et al., 2013). Natural levels of mindfulness have been associated with higher levels of subjective wellbeing and lower perceived stress in pre-service teachers (see Hepburn et al., 2021). Encouraging teachers to develop mindfulness attitudes will improve classroom teaching and for this reason, mindfulness training programs are becoming more widely integrated into professional development training for teachers (Roeser et al., 2022).

Methods

Participants

Twenty-eight teachers across three Government high schools volunteered to take part in the MPT program. Ten participants withdrew during the program due to scheduling commitments, for example, curriculum meetings and family commitments resulting in 18 participants completing all the MPT sessions and pre- and post- program measures. The participants were self-selected and of the participants, one was male, with the remaining 17 being female. Of the participants, 46% were aged between 31 and 40 years and 35% aged between 41 and 50 years (see **Table 1**). The participant sample reflected the demographic of the teaching population in Queensland, as reported by the Queensland College of Teachers Annual Report (Queensland College of Teachers [QCT], 2019). For instance, the average age of registered teachers is 45.6 years of age, with 51.3% over 45 years of age and 76.6% are female.

Measures

Both qualitative and quantitative measures were employed in the present study. The baseline questions included demographic information pertaining to age, years of teaching experience, additional responsibilities, extra-curricular activities, and commitments.

TABLE 1 Demographics of the teacher participants.

Variable	Categories	%	N
Age	<30 years	7	2
	31–40 years	46	13
	41–50 years	35	10
	50+ years	10	3
Teaching experience	<2 years	7	2
	2–5 years	28	8
	5–10 years	7	2
	10+ years	57	16
Level teaching	Junior 7–9	3	1
	Senior 10–12	14	4
	Year 7–12	67	19
	Non-teaching role	10	3
Additional duties/responsibilities	School leadership (deputy/principal)	10	3
	Sporting coach/extra-curricular	10	3
	Head of department	14	4
	Year level coordinator	14	4
	Middle management–teaching and learning	10	3

Qualitative datasets

The purpose-designed weekly reflections gathered important qualitative information about types of incidents that triggered stress, emotional and behavioral responses to stressful situations, social-emotional support, outcomes, and physical awareness of emotions. For example, participants were asked to identify three notable incidents and for two of the incidents share: *What did you do? Who did you speak to? What was the outcome? What was the physical response in the body?* Open-ended questions were included to allow the participants to frame their responses rather than be restricted by the structure of the questions (Cohen et al., 2007). The participants completed an evaluation of the program resources, session content and design after the program.

Self-report measures

Perceived Stress Scale (PSS) (Cohen et al., 1983). The 10 item PSS is a 5-point Likert scale most used for assessing perceived stress in education and psychology research (Lee, 2012). The PSS is not a diagnostic instrument; it measures the degree to which the participants feel their life experiences are uncontrollable, unpredictable, and overwhelming. For example, *In the last month, how often have you been angered because of things that were outside of your control?* The PSS is scored by calculating an overall score; there are no sub-scales. Scores between 14.52 and 17.73 are considered the average range for stress levels, and 20 or higher considered in the "highstress" range (Cohen, 1994). The more stressful the participants perceive their situation to be, the higher the score (Geng et al., 2015). The PSS has been included in previous studies investigating MBIs for educators (Beshai et al., 2016; Jennings et al., 2017). The PSS has received a good level of internal consistency in research examining the use of MBI for educators, for example $\alpha = 0.86$ (Hwang et al., 2019). The PSS allows for the identification of the feeling of control, stability and certainty and ability to cope with challenges, all of which were considered important factors affecting teacher wellbeing in the present study.

Five Facets of Mindfulness Questionnaire (FFMQ) (Baer et al., 2006). The FFMQ is a commonly utilized measure of mindfulness as a stable trait (Baer et al., 2006), with 39 items divided into five sub-scales (facets) that are scored on a 5-point Likert scale. The subscales are: *observing* (e.g., I pay attention to how my emotions affect my thoughts and behavior; $\alpha = 0.83$), *acting with awareness* (e.g., When I do things, my mind wanders off and I'm easily distracted; $\alpha = 0.87$), *non-reactivity* (e.g., I perceive my feelings and emotions without having to react to them; $\alpha = 0.75$), *describing* (e.g., I can easily put my beliefs, opinions, and expectations into words; $\alpha = 0.91$), *non-judging* (e.g., I tell myself I shouldn't be feeling the way I'm feeling; $\alpha = 0.87$) (Baer et al., 2006). All five subscales have suitable psychometric properties, internal reliability, construct and predictive validity. The FFMQ has been included in previous research surrounding MBIs for educators (e.g., Flook et al., 2013; Jennings et al., 2013, 2017; Frank et al., 2015; Beshai et al., 2016). The FFMQ is suitable for administration with the general Australian population (Taylor and Millear, 2016).

Positive Mindset Index (PMI) (Barry et al., 2014). The PMI comprises six items that measure happiness, confidence, sense of control, stability, motivation, and optimism. The items are scored on a five-point Likert scale from 1 (*very unhappy*) to 5 (*very happy*) and a midpoint score (*moderately happy*) (Barry et al., 2014). The author's report excellent internal reliability

(α = 0.93). To date, the PMI has not been included in studies investigating implementation of MBIs for educators.

Intervention

During the consultation period the teacher representatives deemed that the time commitments of the MBSR program were too demanding for teachers already struggling to effectively time-manage their work commitments; therefore, shorter sessions (45 min–1 h) were required. As outlined above, the SMART, CALM, and mMBSR programs are based on the MBSR and modified for educators. To ensure the sessions met the required timeframe, the physical practice (e.g., guided meditation and mindfulness exercises) and theoretical component were reduced, however, the skills presented in the MPT program matched those included in the MBSR. The participants were provided with take-home resources to summarize the focus for each session and assist with home practice sessions. The formal and informal practices included in the MPT were tailored to meet the needs of the teachers with unique examples, reflections and discussion points that were directed toward professional (school) specific contexts. For example, the guided meditation for Loving Kindness was scripted to include students and colleagues. The participants were encouraged to consider how the techniques would be beneficial in the classroom/with students.

There are concerns surrounding MBIs that exclude integral aspects of Buddhist practice, for example, mindful attitudes such as compassion and sympathetic joy, increase the risk of denaturing mindfulness (Grossman and Van Dam, 2011). The MPT consisted of 8 weekly sessions and each session had a specific focus based on the mindful attitudes (Kabat-Zinn, 1991) included in the MBSR program. The physical practice provided an opportunity to practice mindfulness, for example, directing attention to the breath and movement of the body (FA meditation).

The session topics included:

1. Simply Breathing—breathing techniques to calm the body (focused attention meditation)
2. Increasing Awareness—body scan meditation
3. Identifying Stress—responding to stressful situations
4. Respond not React—interactions with others
5. Self-Compassion—being kind
6. Compassion—everyone in our lives
7. Mindful Communication—dealing with conflict
8. Going Forward

Each session followed the structure as outlined in **Table 2**. Each session began with an individual reflection (qualitative dataset) about difficult moments in the classroom in the past week. The participants could reflect on their reactions and the consequences of their actions and the event(s). Teachers then voluntarily debriefed with each other, keeping comments positive and constructive.

The physical techniques included in the MPT program were drawn from the original MBSR program: breath awareness, diaphragmatic breathing, body scan (guided practice), hatha yoga postures (Kabat-Zinn, 1991). The Hatha yoga postures included in the mMBSR and MBSR were included in the MPT with a different sequence included in each session. The theoretical components that closely aligned with the MBSR include the attitudes of mindfulness, recording events in a weekly calendar, practicing the Choiceless Awareness and Loving Kindness meditation (Kabat-Zinn, 1991; Stahl and Goldstein, 2010). The Conscious Discipline approach included in the mMBSR was not included in the MPT.

As Salmon et al. (2009) outlined, programs need a degree of flexibility to allow participants to incorporate strategies into their routine with ease. One of the strengths of the MBSR as outlined by Schure et al. (2008) is that the participants choose which technique works for them. Similarly, the MPT program was developed to provide participants with various strategies they could select and incorporate into their schedule. Courses focusing on stress reduction and pain management typically involve 45 min of formal home practice 6 days a week. However, there is no conclusive evidence that the length of practice at home influences the outcomes for the participants. Courses with 20 min of home practice each day have proven to be as successful as those with 45 min (Chaskalson, 2011). The MPT program incorporated home practice ranging from 5 to 30 min. The home sessions began in Week 1 with a short 5-min session and gradually built to a 20+ min session with as many informal sessions as the participants wanted to include. For example, a 3 min mindfulness exercise, applying beginners mind and 5–10-min breath awareness was one home practice exercise. A different technique or focus for the guided meditation was introduced in each session. Therefore the list of exercises, activities and home practice suggestions increased as the course progressed. Each week the participants were emailed a meditation track to be included in their home practice. The mMBSR also included guided practice options with varying lengths (Flook et al., 2013). The complete list of home practice exercises are included in the results below (see **Table 3**).

Procedure

The required approvals were received from the Human Research Ethics Committee from the Queensland Department of Education and the administering organization. The Code for Responsible Conduct of Research from the Australian Research Council and Universities (2018) was adhered to and followed throughout the study. The intended focus for the program and the requirements were outlined (e.g., session

TABLE 2 Mindful practice for teachers program summary 45-min session.

Session structure		
5–10 min	Personal reflection	Study-specific reflection questions. Optional group discussion.
10–15 min	Theoretical component	Guidance for applying techniques. Brief group discussion.
15–25 min	Practical component	Demonstration of techniques and practice.
Home practice	Suggested home practice outlined. Participants determine the length of the home practice and the techniques included.	

TABLE 3 Home practice—activities and number of participants.

		Week						
		2	3	4	5	6	7	8
Short activities	Mood reflection	6	8	10	5	4	5	2
	3-min of mindfulness	13	10	11	9	7	7	5
	Beginners mind	5	8	8	5	3	5	3
	5–10-min breath awareness	16	17	14	9	9	7	3
Physical practice	Mindful movement	9	9	11	8	8	6	4
Guided meditation	5-min		10	13	11	7	7	4
	10-min body scan (FA)			8	9	5	5	1
	10–15-min choiceless awareness (OM)				3	3	4	0
	10-min emotions						3	0
	15-min loving kindness						4	1
No reported practice		6	5	9	9	7	7	13
Total participants		22	22	23	20	16	14	18

length and program duration). The program was advertised within each school via email and internal means, for example a description of the program was provided at staff meetings. The participants registered their interest in the program via email. The participants were provided with the participant information sheet detailing the program structure, time requirements, risks and benefits. Each weekly session was held after school hours (3:15 p.m.–4 p.m.) on the same day of the week for two participant groups to maximize the participant sample. Hardcopies of the self-report measures were completed at the onset (week 1) and conclusion (week 8) of the program. The weekly reflections (qualitative datasets) were completed at the start of each session outlining notable incidents the participants experienced during the preceding week.

The Integrative Framework for Inference Quality from Teddlie and Tashakkori (2009) was considered in the design phase of the project. *Design quality* was met through the study design (*design suitability*) reflecting the existing research pertaining to MBIs for educators and appropriately addressing the research questions (*analytic adequacy*). Existing literature in the field of MBIs for educators was reviewed, increasing *interpretive rigor* (e.g., *theoretical consistency*). The explanatory content-focused mixed-methods research question (research question two) provided an opportunity to strengthen the inferences generated from the quantitative and qualitative datasets (Creswell and Plano Clark, 2018).

Program feasibility and fidelity

The same person facilitated the manualized MPT program in each session across the two participant groups. A second researcher was in attendance during the session and made note of the consistency between the two participant groups. The length of the session, content covered, and physical practice was consistent. The theoretical component followed the manual and the physical practice was detailed in the manual to ensure consistency and assist the participants with their home practice. Two groups were included to ensure there were options for the participants who registered their interest in the program.

Data analysis

Self-report survey data were manually entered into the IBM Statistical Package for the Social Sciences (SPSS) Version 25 at the conclusion of the program. The scales were coded as per the author's instructions (e.g., reverse coding). The datasets were cleaned before analysis and the summed score was produced for the PSS and each of the sub-scales in the FFMQ and the PMI. The data met the required assumptions for normality and descriptive and inferential statistics were completed. To identify the change in PSS, FFMQ and PMI scores from baseline (time one) to postprogram (time two), a paired-samples *t*-test was selected (Field, 2018). High internal reliability was present for

TABLE 4 Cronbach's alpha—self-report measures (pre-program $N = 28$; post-program $N = 18$).

Scale	Cronbach's alpha A	
	Pre-program	Post-program
Perceived Stress Scale	0.81	0.88
Five Facets of Mindfulness Questionnaire	0.92	0.91
Positive Mindset Index	0.68	0.75

the PSS, FFMQ, and moderate internal reliability for PMI (see Table 4). A Shapiro-Wilk test was completed for the PSS pre-program [W(18) = 0.956, $p = 0.52$], and FFMQ sub-scales and normality was assumed ($p > 0.05$).

The qualitative datasets (weekly reflections) were entered into SPSS. The steps for inductive thematic coding (Creswell, 2014) were followed. That is, the responses were collated for each participant using the participant codes. After the initial sweep (read through) the data were coded for the trigger for the event (e.g., professional or personal), the behavior (e.g., response or react), the action (communication with others) and the awareness of the physical response in the body (e.g., positive or negative). Two of the authors were involved in the process of coding the qualitative datasets.

Results

Self-report measures pre- and post-program

To address whether participating in the 8-week (6-h) MPT program influenced measures of perceived stress, mindfulness, and positive mindset for teachers (Research Question 1), a paired sample *t*-test was selected to assess the changes in PSS, FFMQ, and PMI scores from pre- to post-program. Pre- and post-program means, standard deviations, mean of the difference (xd), standard deviation of the sample of differences (sd), effect size ($\hat{d}$), *t*-value, and *p*-value [$df = 1(17)$] for each of the scales and subscales are shown in Table 5. The PSS pre-program ($M = 23$, $SD = 4.74$) and post-program ($M = 18.67$, $SD = 4.79$) with the conditions: $t(17) = 3.4$, $p = 0.003$ suggest a significant decrease in perceived stress pre- and post-program ($p < 0.05$). The 95% confidence interval was [1.6, 7.0] with a large effect size ($\hat{d} = 0.8$). When compared to reported scores (12–14.2) for the same age range of 20–50 years in the general population (Cohen, 1994), the teachers began and continued to be in the "very stressed" category (see Figure 1).

The results indicated an increase in all five sub-scales of the FFMQ, however, a significant result was produced for three of the five sub-scales. The sub-scale for *observing* indicated a significant increase pre-program ($M = 23.78$, $SD = 4.27$) and post-program ($M = 30.39$, $SD = 4.23$) with the conditions: $t(17) = -5.13$, $p = 0.001$. There was a large negative effect size ($\hat{d} = -1.21$) with a 95% confidence interval [-9.3, -3.8]. The sub-scale of *non-reaction* significantly increased pre-program ($M = 20.11$, $SD = 3.44$) and post-program ($M = 23.56$, $SD = 3.31$) with the conditions: $t(17) = -3.34$, $p = 0.004$. Similarly, *non-judgment* significantly increased pre-program ($M = 23.67$, $SD = 6.7$) and post-program ($M = 27.39$, SD 6.58) with the conditions: $t(17) = -2.14$, $p = 0.047$.

The reported change for the PMI was for the sub-scale of *stability* which significantly increased pre-program ($M = 3.35$, $SD = 0.7$) and post-program ($M = 3.71$, $SD = 0.58$) with the conditions: $t(17) = -2.4$, $p = 0.029$ with a large negative effect size ($\hat{d} = -2.4$).

Participant reflections

To address Research Question Two, participants completed a weekly reflection at the start of the session. Participants reflected on incidents/events that had occurred in the week prior to the session. They recorded two incidents each week of the program (Table 6). The incidents/events were coded for triggers, for example, professional (students, colleagues), personal (family, friends). Participants reported incidents/events relating to student behavioral concerns for example, one participant shared "excluded a student due to assault of a teacher" and "students threatening others outside of school." Personal incidents/events included major life events, such as getting married, supporting teenage children through emotional demands, or dealing with health concerns for family members.

For each incident/event the participants were asked to reflect if they were aware of the physiological response in the body. The participants shared the subsequent physiological response for challenging situations, for example, "shaking hands, tears" and "felt tension in the shoulders, feeling anxious." Similarly, positive experiences were reported, such as "feeling joyful" and "[my] body felt relaxed and calm." The physiological responses were coded as either negative or positive. As illustrated in Figure 2, the physiological response reported for each

TABLE 5 Paired-sample *t*-tests for the PSS and FFMQ summary.

		Pre-program		Post-program		Paired *t*-test				
Scale	**Sub-scale**	**Mean**	**SD**	**Mean**	**SD**	$\bar{x}_d$	s_d	$\hat{d}$	***t***	***p*-value**
Perceived Stress Scale	–	23	4.74	18.67	4.790	4.33	5.40	0.80	3.40	0.003*
Five Facets of Mindfulness Questionnaire	Observing	23.78	4.278	30.39	4.231	−6.61	5.46	−1.21	−5.13	0.001*
	Describing	26.89	5.810	28.56	5.554	−1.66	4.22	−0.39	−1.67	0.113
	Act with awareness	20.78	4.264	19.06	4.065	1.72	4.87	0.35	1.50	0.152
	Non-judgment	23.67	6.704	27.39	6.581	−3.72	7.37	−0.50	−2.14	0.047*
	Non-reaction	20.11	3.445	23.56	3.312	−3.44	4.36	−0.78	−3.34	0.004*
Positive Mindset Index	Happiness	3.29	0.686	3.59	0.618	−0.294	0.985	−0.2	−1.231	0.236
	Confidence	3.25	0.856	3.50	0.730	−0.250	0.775	−0.32	−1.291	0.216
	Sense of Control	3.06	0.680	3.50	816	−0.437	0.964	−0.45	−1.815	0.089
	Stability	3.35	0.702	3.71	0.588	−0.353	0.606	−0.58	−2.400	0.029*
	Motivation	3.31	0.873	3.56	0.814	−0.250	1.183	−0.21	−0.845	0.411
	Optimism	3.19	0.911	3.56	1.031	−0.375	1.147	−0.32	−1.307	0.211

incident/event changed across the duration of the MPT. In Week 1, negative physical responses were reported in 18 of the 35 incidents/events (positive response $n = 10$). By Week 8, there had been a decrease in negative reactions ($n = 11$) and an increase in positive reactions ($n = 16$). In the Week 8 reflection, one participant shared an increased sense of awareness, "I have been made more aware and back to my 'calm self' and appreciating the small things."

Participant satisfaction

Attendance at the MPT sessions was consistently high with 81% of the participants attending each session. Participants were asked to rate their experience of the various components of the MPT on a scale of 1–10 with 1 being *not at all useful* and 10 being *extremely useful* (**Figure 3**). The mean score was high across all components indicating that participants found all components useful in some way. Participants indicated that the meditation, mindful movement and discussion components to be the most useful. Time with colleagues and theory were also considered useful, but there was more variation in the responses across participants.

One participant reflected in Week 8:

> *I enjoyed making the time to participate and sharing this experience with a range of colleagues . . . timing of the sessions was good in length and variety of activities.*

> *I have become a more aware person overall and this has impacted on my professional and personal life in a positive way.*

Whereas, another participant shared "I love coming here each week, it forces me to think of myself in a healthy and supportive way and to just focus on me." When asked if any resources weren't useful or applicable, they explained:

> *I just didn't have the emotional resources to implement or practice anything outside of class, but I am so very grateful for this course because it has been a safe place for me to come each week and has given me the strength to love myself and make major positive decisions in my life.*

Home practice

The MPT included suggested home practice of varying lengths and a different technique was introduced in each session. For example, the first session focused on simple, basic breathing techniques and FA meditation. Whereas in Week 7 and 8, longer guided meditation practices were introduced that included open monitoring (OM) meditation. The participants were asked to indicate what home practice exercises they had completed in the weekly reflections. The total number of participants who reported they had tried the exercise or activities are summarized in **Table 3**. Short activities were consistently reported by the participants across the duration of the MPT program. For example, 3-min of mindfulness and 5–10-min of breath awareness were the most commonly practices activities.

Discussion

There is no single model for employee-working-environment fit and this presents a challenge for schools to combat teacher burnout (Pyhältö et al., 2011). To provide a working environment that supports teacher wellbeing, the professional community must first identify the causes of teacher stress and develop holistic, collaborative coping strategies for

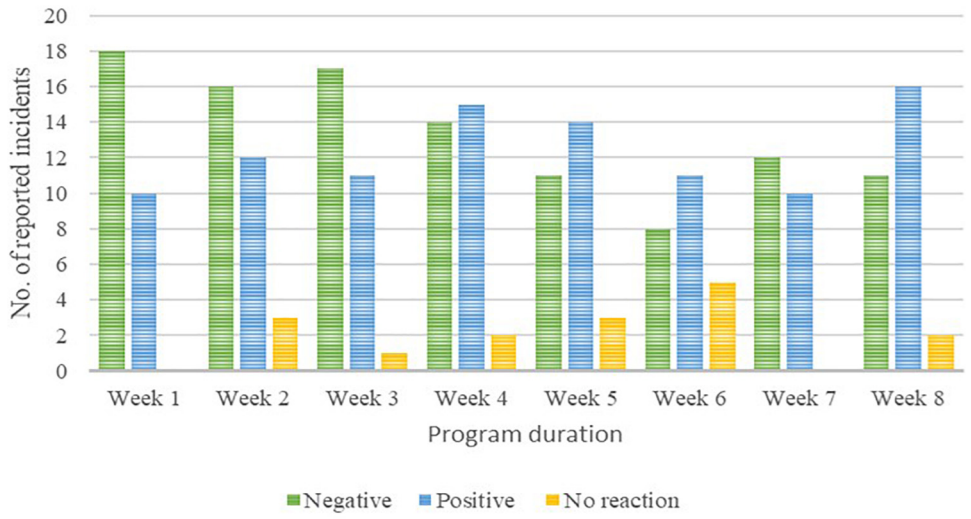

FIGURE 1
Physical response of the body during the reported weekly incidents.

TABLE 6 Participant reflections and coding of incident triggers (total each week *N* = 35).

	Professional				Personal			
Week	**Students**	**Colleagues**	**Workload**	**Other**	**Family/friends**	**Other**	**Total *n***	**No response**
1	14	4	1	3	3	6	31	4
2	8	2	3	6	5	7	31	4
3	8	0	0	3	7	11	29	6
4	10	2	1	7	2	10	31	4
5	8	3	3	1	8	6	28	7
6	8	3	1	1	5	6	24	11
7	6	1	0	2	7	6	22	13
8	8	4	1	6	3	8	29	6

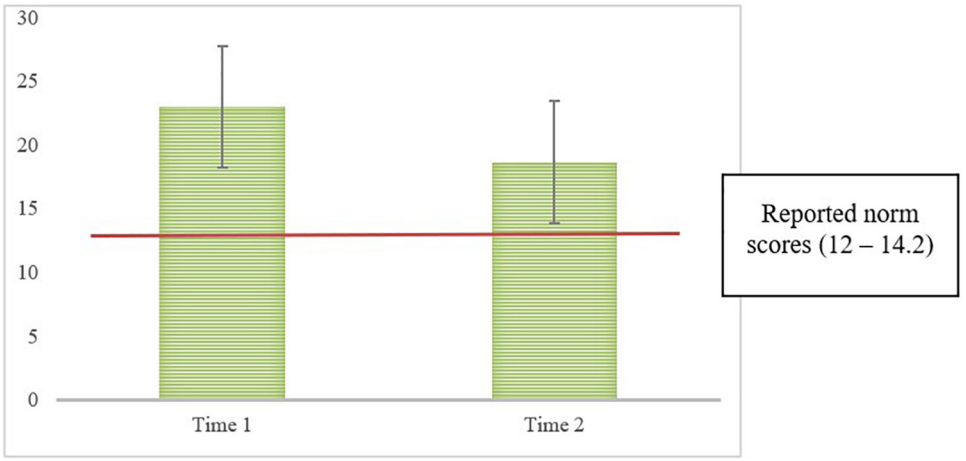

FIGURE 2
Change in perceived stress compared to general population matched on age. Time 1 (pre-program) and Time 2 (post-program).

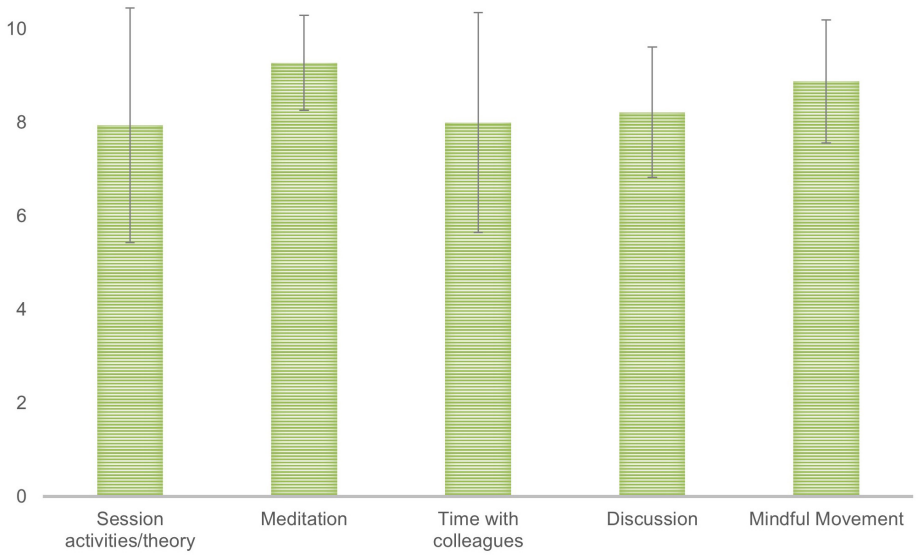

FIGURE 3
Participant satisfaction: Ratings of usefulness for the components of the Mindful Practice for Teachers (MPT).

dealing with challenges. As McCarthy (2019) outlined, the emphasis should be on providing teachers with strategies for reappraising situations and managing stress instead of waiting for burnt-out teachers to ask for assistance.

Changes in mindfulness, perceived stress, and mindset

In the present study, the findings suggested significant changes in reported FFMQ sub-scales for *non-reactivity*, *non-judgment*, and *describing*. Neurological and behavioral evidence suggests that focused attention and open-monitoring meditation may promote attentional stability and decrease reactivity (Lutz et al., 2009). The FFMQ sub-scale of *non-reactivity* has been linked to mechanisms such as emotion regulation (e.g., exposure and reconsolidation) and the associated brain region include the prefrontal cortex (Hölzel et al., 2011). Previous research investigating MBIs for educators indicates similar findings, for example, significant changes in the FFMQ sub-scales of *non-reactivity* (Flook et al., 2013; Roeser et al., 2022) and the total FFMQ score (Roeser et al., 2013; Beshai et al., 2016). The study by Flook et al. (2013) involved 18 participants from four public elementary schools ($n = 15$), in low income and racial/ethnic minority populations. Similar findings were reported by Gold et al. (2010) on all four subscales of the Kentucky Inventory of Mindfulness Skills (Baer et al., 2004) (sub-scales included: *accept without judgment*, *describing*, *observing*, and *act with awareness*). Jennings et al. (2017) reported a significant change for *non-judgment* and *observing* subscales from the FFMQ for participants in the CARE program. More recently, Hwang et al. (2019) reported improvements in wellbeing because of decreased perceived stress (measured with the PSS) and increased mindfulness (measured with the FFMQ-Short Form 18 (Medvedev et al., 2018). Similarly, the decrease in perceived stress in the present study may relate to the increase in mindfulness. In the MPT, the participants were learning to increase their awareness of sensations and reactions within the body and consequently practice mindful awareness, which assists with cognitive reappraisal. Adaptive emotion regulation assists an individual to examine a situation and engage in cognitive reappraisal and decrease emotion suppression which can facilitate (improve) emotion regulation when experiencing difficult emotions in the classroom (Jennings et al., 2017). The significant increase in the PMI *stability* sub-scale may relate to the increased attentional stability indicated by the FFMQ results.

Participant experience and the influence on perceived stress, mindfulness, and mindset

An extensive list of factors influences teacher wellbeing and stress operating at the macro (school) and meso (systemic) levels. In the present study, the MPT was held during Term 4 of the academic year (October–December) and included the reporting period. The end of the term includes the marking and reporting (assessment) period, which is weighted with additional time pressure. It is important to note that the participants' personal experiences play a role in influencing the findings of the study, for example,

dealing with health concerns in the family or personal challenges. The reported incidents/events classified as personal, included major life events, such as getting married and coping with an illness in the family (e.g., spouse needing medical treatment).

The reflections shared by the participants provide additional contextual data and add value to the study's findings. The physiological responses shared by the participants indicate the severity of the experiences, for example, acute stress/emotional reactions to situations in professional contexts. The incidents/events reported by the participants predominantly focused on professional contexts, for example student behavior (positive and negative) and interactions with colleagues. For instance, the events reported reflected the challenging context of the schools included in the study. The participants reported events surrounding child protection issues, violence, and abuse. Events of this nature present challenges for teachers in terms of emotional labor and carry a degree of emotional charge (McCuaig et al., 2019).

It has been suggested that teacher-student interactions can be improved due to the decreased reactive responses experienced by teachers after practicing mindfulness-based techniques (Skinner and Beers, 2016). This might be reflected in the change in incidents/events reported by the participants in the present study. There was a shift from student-related incidents/events from weeks 1 to 8. In previous research including MBIs (e.g., Napoli, 2004; Schussler et al., 2016) teachers reported an improved ability to manage changes within the classroom, decreased anxiety and feeling more calm. The trend evidenced in the participant reflections in the present study indicates that there was a change in physiological response. For example, negative physical responses decreased, and positive physical response increased across the duration of the MPT. This may relate to the change in FFMQ scores, in particular the sub-scale of *non-reaction* and support the decrease in PSS scores.

Changes in the physiological stress response have been previously reported in MBIs for educators (e.g., Hwang et al., 2017). The PSS highlights the degree to which an individual feels they have control over their life (Cohen et al., 1983). As indicated in the participant reflections, participating in the MPT provided an opportunity to consider their own health and wellbeing and make time for selfcare and self-compassion. The decreased PSS scores may relate to increased feelings of autonomy and ability to prioritize self-care and self-compassion shared by the participants.

Connection with others

Stress surrounding interpersonal relationships can be lessened with the development of interpersonal skills. It is beneficial for teachers to develop relationship repair skills such as forgiveness to lessen the stress of conflict in the classroom (Taylor and Millear, 2016). The participants in the present study were provided with the opportunity to share experiences, frustrations, and personal reflections therefore creating positive personal interaction (McCallum and Price, 2010). The participants shared that they found the sense of community and connection with others of particular benefit and the weekly session provided them with an opportunity to speak candidly with their colleagues. They would otherwise not have the opportunity for sharing with others during a typical school day and this was noted as a welcomed benefit. Mindfulness has been previously linked to the development of interpersonal skills such as perspective taking and compassion (Emerson et al., 2017).

Self-compassion

Mindfulness-based strategies and techniques can influence an individual's self-perception through the process of decentering and increasing self-compassion (Hölzel et al., 2011). Supporting teacher's self-compassion can reduce negative appraisals and improve self-efficacy (Emerson et al., 2017). In the present study, there was a change in the participants' view of self-compassion and prioritizing their own needs. Making time for themselves and reflecting on their own needs and factoring in relaxation activities into their routine was noted as a change throughout the program for the participants. The consistently reported home practice supports the argument that simple, short exercise might prove beneficial and feasible for educators.

Study limitations and further research

While the present study has provided important findings with regard to supporting teachers through the introduction of mindful practices in their daily lives, there are study limitations which must also be recognized. First, convenience sampling relied on participants volunteering for the study, so we may have attracted participants who were already quite stressed. Nevertheless, findings indicated the benefits of the program on these highly stressed teachers. Second, the small sample size tempers the generalizability of the findings. Future research warrants the recruiting of a range of state, private and independent schools from a mix of socioeconomic areas to broaden the size and breadth of the teacher participants. Third, the present study focused on the core questions of whether participation in the mindfulness-based program (the Mindful Practice for Teachers program, MPT) would have a positive influence on teacher's perceived stress, mindfulness, and positive mindsets, self-reported through survey and reflections. School-based research often makes it challenging to implement randomized-control designs, however, with the positive findings

of the MPT program, future research would benefit from employing both randomization and a follow-up, generalization phase. Moreover, objective measures such as wearable biometric devices that can monitor physiological activity of participants in real-time would provide valuable data to triangulate and confirm the self-report measures.

Conclusion

Teachers play a crucial role in establishing a positive learning environment for students and importantly influence student achievement. They are increasingly called upon to attend to both the academic and non-academic needs of their students, which is exacerbating an already stressed workforce. In addition, the impact of the pandemic has created ongoing challenges for education systems. The present study sought to provide a toolkit of strategies for teachers to manage stress and increase mindfulness skills thus creating individual-level support for mediating the impact of the stress. The findings were not limited to simply increasing mindfulness, positive mindset and decreasing perceived stress. The findings indicate that an individual-level initiative encourages emotion awareness, regulation, self-compassion, and connection with others through the use of mindfulness, reflections, and interactions with colleagues.

Data availability statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Ethics statement

The studies involving human participants were reviewed and approved by the Human Research Ethics Committee of The University of Queensland and the Queensland Department of Education. Written informed consent to participate in this study was provided by the participants' legal guardian/next of kin.

Author contributions

AC was the senior supervisor of this work, contributions included conceptualization and design of the project, writing and editing, and providing critical feedback on the manuscript. S-JH was involved in all aspects of the project design, including the design and development of the MPT program, contributed her knowledge and expertise on conceptualization, design, implementation, and data analysis. JB was involved in all aspects of project design, involved in the design and delivery of the program, and contributed her knowledge and expertise during critical discussions on conceptualization, design, and analysis.

Funding

This work was supported by the Australian Research Council-Linkage Project (Project number: LP140100348).

Acknowledgments

We would like to sincerely thank the teachers who participated in this study.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

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