

The protective effects of mindfulness against burnout among educators

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Because many educators experience stress and burnout, identifying factors that promote health and well-being among teachers and school staff is critical. Educators' mindfulness is one aspect of social-emotional competence that may protect them from experiencing burnout and its negative consequences. In the current study, 64 educators completed self-report measures of mindfulness, burnout, affect, sleep-related impairment, daily physical symptoms, stress, and ambition. Results of cross-sectional analyses indicated that educators' mindfulness had strong, consistent negative associations with three widely-studied components of burnout: emotional exhaustion, depersonalisation, and low personal accomplishment. The link between mindfulness and burnout was partially explained by affect, sleep-related impairment, and daily physical symptoms. In addition, the protective effect of mindfulness was most pronounced among more stressed and more ambitious educators. This study adds to accumulating evidence that mindfulness promotes resilience in educators and may foster healthy educators, classrooms, and students.

EDUCATORS are faced with the difficult task of meeting the academic, social, and emotional needs of diverse learners in their classrooms – a task of even greater difficulty in the present context of high-stakes testing and teacher accountability in the US (Darling-Hammond & Sykes, 2003) and OFSTED inspections in the UK (Hartney, 2008). Given the psychological resources this requires, teaching is a particularly demanding profession (Roeser et al., 2012; Shulman, 2004). In the US, about 51 per cent of educators report experiencing excessive stress several days per week (MetLife, 2013), and nearly 40 per cent leave the profession within their first five years of teaching (Ingersoll, 2002). Teacher attrition is also a problem in the UK, where educators leave the profession at higher rates than other European countries (Ladd, 2007). A study of UK teachers leaving the profession found that 35 per cent cited stress and 45 per cent cited heavy workloads as their main reason for leaving their jobs, while only 11 per cent cited low salary as a major concern (Smithers & Robinson, 2003).

In light of these trends, an important objective for research and practice is to identify potentially malleable characteristics of educators that enable them to cope with stress, burnout, and the daily demands of teaching. Recent work suggests that educators' social-emotional competence may protect them from experiencing a 'burnout cascade' of deteriorating classroom climate, student misbehaviour, emotional exhaustion, and callousness (Jennings & Greenberg, 2009). In this paper, we focus on mindfulness as one aspect of educators' social-emotional competence that may buffer against burnout and facilitate more optimal outcomes among educators and their students.

Mindfulness has been defined as 'paying attention in a particular way: on purpose, in the present moment, and non-judgmentally' (Kabat-Zinn, 1994, p.4). Self-regulation of attention, self-awareness, and self-compassion – three key components of mindfulness – enable individuals to identify the emotional triggers of their stress reactions and deploy effective, non-reactive coping

strategies when stress arises (Roeser et al., 2012). Mindfulness, as well as other aspects of social-emotional competence, may be particularly useful in classroom settings because it facilitates proactive (versus reactive) classroom management strategies and healthy teacher-student relationships (Jennings & Greenberg, 2009). For example, mindful educators may be more attentive and responsive to the academic, social, and emotional needs of individual students, as well as to broader classroom dynamics. They may more easily monitor fluctuations in the level of student engagement and learning, and thus more readily and flexibly adapt their instructional approach to reach their students. Furthermore, with greater awareness of their own thoughts and feelings, mindful educators may show greater self-regulation of their automatic reactions to student misbehaviour, enabling them to limit their use of reactive, punitive practices in favor of more intentional, constructive practices. Greater self-awareness and self-compassion may also help educators notice when they should implement stress-management techniques or self-care practices in order to recover their depleted cognitive and emotional resources (Jennings, Roeser & Lantieri, 2012; Roeser et al., 2012).

Mindfulness has been shown to buffer the effects of burnout among health and human service professionals (e.g. Hülshager et al., 2013; Krasner et al., 2009), but few studies to date have documented this link among educators specifically (for exceptions, see Jennings et al., in press; Roeser et al., 2013). The protective effect of mindfulness against educator burnout may be particularly important given that burnout has been linked to poorer physiological and psychosocial health and well-being among educators (Bellingrath, Weigl & Kudielka, 2009; Guglielmi & Tatrow, 1996; Melamed et al., 2006; Steinhardt et al., 2010) and may negatively impact classroom quality and teaching performance (Hultell, Merlin & Gustavsson, 2013; Jennings & Greenberg, 2009; Soenens et al., 2012). Taken together, this evidence

suggests that mindfulness may protect educators from experiencing burnout, which in turn may lead to healthier learning environments and better student outcomes.

Although mindfulness and burnout appear to be linked, little work has examined the intermediary processes that might explain how mindfulness ultimately impacts burnout. It is possible, for example, that more proximal effects of mindfulness or mindfulness training on emotional experiences (Brown & Ryan, 2003; Fredrickson et al., 2008; Kemeny et al., 2012; Prazak et al., 2012), sleep difficulties (Allen & Kiburz, 2012; Howell et al., 2008), and physical symptoms (Brown & Ryan, 2003; Fredrickson et al., 2008; Reibel et al., 2001) mediate the association between mindfulness and burnout. In other words, mindfulness may protect educators from experiencing burnout in the long-term to the extent it impacts their daily emotional and physiological experiences.

In addition, little work has examined the conditions under which mindfulness is most protective against burnout. Prior research indicates that educators who experience more stress (McCormick & Barnett, 2011; Montgomery & Rupp, 2005; Peiro, Gonzalez-Roma, Tordera & Manas, 2001; Steinhardt et al., 2010) or show more ambition and commitment to their work (Klusmann et al., 2008; Maslach, Schaufeli & Leiter, 2001) also report more burnout. It is possible, though, that mindfulness moderates these effects. Based on this hypothesis, the effect of stress on burnout may be reduced among more mindful educators because they possess greater self-regulatory abilities and stress-management skills relative to less mindful educators, who may be more vulnerable to the negative effects of stress. Similarly, the effect of greater ambition on burnout may be reduced among more mindful educators because they more easily recover depleted physiological and psychological resources relative to less mindful educators, who may turn to less effective coping strategies (e.g. emotion suppression) when depleted.

The present study

The present study examined cross-sectional associations between mindfulness and burnout in a sample of teachers and school staff. First, we sought to replicate prior work demonstrating that educators' mindfulness is related to their emotional exhaustion, depersonalisation, and low personal accomplishment, three components of burnout. Next, we explored whether indicators of daily functioning mediated the effects of mindfulness on burnout. Finally, we investigated whether mindfulness was particularly protective for certain individuals: more stressed educators and more ambitious educators.

Method

Participants

Participants were 64 educators (88 per cent female) from two middle schools in Pennsylvania. Approximately 66 per cent of participants were classroom teachers, and 34 per cent were other school staff (e.g. paraprofessionals, learning support staff, counsellors). On average, participants were about 43 years old and had 14 years of experience in education. The sample was predominantly (98 per cent) Caucasian.

Measures

The current analyses use self-report data from the baseline assessment of an ongoing, longitudinal study of educator health and well-being (<http://www.prevention.psu.edu/projects/CALM.html>). At the start of the 2012–2013 academic year, participants completed web-based self-report surveys about their attitudes, feelings, and behaviours.

Mindfulness. Educators rated their mindfulness on two measures, the Interpersonal Mindfulness in Teaching Scale (IMTS; Greenberg, Jennings & Goodman, 2010) and the Five Facet Mindfulness Questionnaire (FFMQ; Baer et al., 2006). Scores on

the IMTS were the average of 20 items on mindfulness in daily teaching activities and interactions with students rated on a five-point Likert scale from 'never true' to 'always true' ($\alpha=.84$; e.g. 'I rush through activities with my class without being really attentive to them' [reverse-scored]). Scores on the FFMQ were the average of 39 items on multiple components of mindfulness rated on a five-point Likert scale from 'never or very rarely true' to 'very often or always true' ($\alpha=.92$; e.g. 'I pay attention to how my emotions affect my thoughts and behaviour'). Both the IMTS and the FFMQ tap key components of mindfulness (e.g. awareness, present-moment attention, non-reactivity); however, the IMTS was developed to assess teacher mindfulness in classroom settings with a specific focus on interpersonal aspects of mindfulness, whereas the FFMQ is a more general measure that focuses primarily on the intrapersonal aspects of mindfulness. Both measures were included in the current study to examine whether associations were robust across measures or specific to a particular scale.

Burnout. Educators rated their feelings of burnout on the Maslach Burnout Inventory – Educators Survey (MBI; Maslach, Jackson & Leiter, 1997). The questionnaire includes three subscales with nine items on emotional exhaustion ($\alpha=.91$; e.g. 'I feel emotionally drained from my work'), five items on depersonalisation ($\alpha=.73$; e.g. 'I worry that this job is hardening me emotionally'), and eight items on low personal accomplishment ($\alpha=.82$; e.g. 'I have accomplished many worthwhile things in this job' [reverse-scored]) rated on a seven-point Likert scale from 'never' to 'every day.' Ratings were summed to create scores for each subscale.

Affect. Educators rated their recent experience of positive affect and negative affect on an adapted version of the Positive and Negative Affect Schedule (PANAS; Watson, Clark

¹ All alphas reported in this paper are drawn from the current sample.

& Tellegen, 1988), which was extended to include a broader range of emotions at high and low activation states (e.g. Kuppens et al., 2007; Carstensen et al., 2011). The adapted questionnaire includes 14 items on positive affect ($\alpha=.93$; e.g. 'excited,' 'relaxed') and 13 items on negative affect ($\alpha=.93$; e.g. 'upset,' 'tense') rated on a five-point Likert scale from 'very slightly or not at all' to 'extremely.' Ratings were averaged to create scores for each subscale.

Sleep-related impairment. Educators rated their sleep-related impairment on eight items from the Patient-Reported Outcomes Measurement Information System (PROMIS; Buysse et al., 2010). Scores were the sum of eight items on problems during waking hours due to sleep difficulties rated on a five-point Likert scale from 'not at all' to 'very much' ($\alpha=.93$; e.g. 'I had a hard time getting things done because I was sleepy').

Daily physical symptoms. Educators indicated whether or not they experienced various symptoms that day on the Daily Physical Symptoms checklist (Larsen & Kasimatis, 1991). The checklist includes 27 symptoms rated 'yes' if experienced that day and 'no' if not experienced that day (e.g. 'headache,' 'fever'). Scores were the percentage of symptoms endorsed.

Stress. Educators rated their stress on the short form of the Perceived Stress Scale (PSS; Cohen, Kamarck & Mermelstein, 1983). Scores were the average of four items on perceptions of stress and ability to handle stress rated on a five-point Likert scale from 'never' to 'very often' ($\alpha=.88$; e.g. 'How often have you felt confident about your ability to handle your personal problems?').

Ambition. Educators rated their ambition on the Competitiveness subscale of the Time

Urgency Scale (TUS; Landy et al., 1991). Scores were the average of six items on the tendency to be hard-working, driven, and ambitious rated on a five-point Likert scale from 'strongly disagree' to 'strongly agree' ($\alpha=.74$; e.g. 'I go 'all out,' 'I have a strong need to excel in most things').

Results

Descriptive statistics and correlations among the study variables are presented in Table 1. Both measures of mindfulness were positively related to positive affect and negatively related to burnout, negative affect, sleep-related impairment, daily physical symptoms, and perceived stress.

Is mindfulness related to burnout among educators? To examine the association between mindfulness and burnout, each measure of burnout was regressed on a measure of mindfulness, using gender and years of experience in education as covariates. Results of the IMTS and FFMQ models are reported at the top of Table 2. Across models, mindfulness had strong, consistent negative associations with emotional exhaustion, depersonalisation, and low personal accomplishment (β s ranged from $-.47$ to $-.67$)². That is, educators reporting higher levels of mindfulness on the IMTS or the FFMQ reported less burnout than educators reporting lower levels of mindfulness.

What proximal effects explain the link between mindfulness and burnout? Following the steps for mediation outlined by Baron and Kenny (1986), we then explored whether the proximal outcomes (i.e. positive affect, negative affect, sleep-related impairment, and daily physical symptoms) mediated the effect of mindfulness on burnout. Having already established the direct effects of mindfulness on the three measures of burnout, we regressed each of four proximal

² Results were replicated in additional analyses (not reported here) using the two IMTS subscales (i.e. Present Centered Awareness and Interpersonal Mindfulness) and the five FFMQ subscales (i.e. Observing, Describing, Acting with Awareness, Non-judging, and Non-reactivity) as the measure of mindfulness in the regression models.

Table 1: Descriptive statistics and correlations.

	M	SD	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1. Mindfulness in Teaching	3.64	0.40	-										
2. Five-Facet Mindfulness	3.33	0.49	0.75*	-									
3. Emotional Exhaustion	24.64	12.28	-0.56*	-0.60*	-								
4. Depersonalisation	5.37	5.12	-0.56*	-0.49*	0.68*	-							
5. Low Personal Accomplishment	8.62	6.56	-0.58*	-0.54*	0.27*	0.34*	-						
6. Positive Affect	3.34	0.71	0.56*	0.51*	-0.42*	-0.35*	-0.61*	-					
7. Negative Affect	2.03	0.81	-0.45*	-0.60*	0.59*	0.43*	0.36*	-0.29*	-				
8. Sleep-Related Impairment	19.59	7.04	-0.58*	-0.54*	0.62*	0.52*	0.39*	-0.30*	0.57*	-			
9. Daily Physical Symptoms	0.13	0.07	-0.45*	-0.48*	0.51*	0.43*	0.52*	-0.41*	0.59*	0.64*	-		
10. Perceived Stress	1.43	0.87	-0.51*	-0.59*	0.54*	0.34*	0.45*	-0.47*	0.64*	0.49*	0.54*	-	
11. Ambition	3.82	0.61	0.11	-0.03	-0.04	-0.06	-0.02	0.21+	0.14	-0.06	0.04	0.13	-

Note: Pairwise Ns 59-64. M=mean. SD=standard deviation. + $p < .10$; * $p < .05$.

Table 2: Mindfulness as a predictor of burnout and potential mediators.

	Mindfulness	
	IMTS Models	FFMQ Models
Burnout		
Emotional Exhaustion	-0.58*	-0.67*
Depersonalisation	-0.54*	-0.49*
Low Personal Accomplishment	-0.56*	-0.47*
Potential Mediators		
Positive Affect	0.55*	0.51*
Negative Affect	-0.45*	-0.60*
Sleep-Related Impairment	-0.57*	-0.54*
Daily Physical Symptoms	-0.45*	-0.48*

Note: All estimates are from OLS regression models (Ns 58–64) where each outcome was regressed on gender, years of experience in education, and a measure of mindfulness. Standardised betas are shown above. Results of models using the IMTS are presented in the first column, and results of models using the FFMQ are presented in the second column. IMTS=Interpersonal Mindfulness in Teaching Scale (Total Score). FFMQ=Five Facet Mindfulness Questionnaire (Total Score). + $p < .10$; * $p < .05$.

Table 3: Mediation of the association between mindfulness and burnout.

	Mediators							
	Positive Affect		Negative Affect		Sleep-related Impairment		Daily Physical Symptoms	
	IMTS Model	FFMQ Model	IMTS Model	FFMQ Model	IMTS Model	FFMQ Model	IMTS Model	FFMQ Model
Emotional Exhaustion								
Effect of mediator	-0.16	-0.15	0.42*	0.36*	0.50*	0.42*	0.32*	0.31*
Residual effect of mindfulness	-0.49*	-0.60*	-0.39*	-0.46*	-0.29*	-0.45*	-0.40*	-0.49*
Mediation of total effect	-	-	32%	31%	50%	33%	31%	27%
Depersonalisation								
Effect of mediator	-0.06	-0.11	0.21+	0.22	0.30*	0.35*	0.23+	0.27*
Residual effect of mindfulness	-0.51*	-0.43*	-0.44*	-0.35*	-0.36*	-0.29*	-0.41*	-0.33*
Mediation of total effect	-	-	19%	-	33%	40%	24%	31%
Low Personal Accomplishment								
Effect of mediator	-0.40*	-0.47*	0.05	0.04	0.02	0.13	0.29*	0.34*
Residual effect of mindfulness	-0.34*	-0.23+	-0.54*	-0.45*	-0.55*	-0.40*	-0.41*	-0.29*
Mediation of total effect	39%	51%	-	-	-	-	27%	39%

Note: All estimates are from OLS regression models (Ns 58–64) where each outcome was regressed on gender, years of experience in education, a measure of mindfulness, and a mediator. Standardised betas are shown above. Mediation of total effect was calculated as [(standardised total effect – standardised residual effect)/standardised total effect], where total effect refers to the effect of mindfulness in the original models without the mediators (reported in Table 2). Percentage of mediation is only reported where bootstrapping methods indicated a significant ($p < .05$) or trend-level ($p < .10$) indirect effect of mindfulness via the mediator. IMTS=Interpersonal Mindfulness in Teaching Scale (Total Score). FFMQ=Five Facet Mindfulness Questionnaire (Total Score). + $p < .10$; * $p < .05$

outcomes on the measures of mindfulness, using gender and years of experience as covariates. As shown at the bottom of Table 2, mindfulness was a moderate to strong predictor of the proximal outcomes.

Next, in separate models, we regressed each burnout measure on the measures of mindfulness and the proposed mediators, using gender and years of experience as covariates. Bootstrapping methods (Bollen & Stine, 1990; Preacher & Hayes, 2008; Shrout & Bolger, 2002) were used to test the significance of the indirect effect from mindfulness to burnout via the mediator. As shown in Table 3, mindfulness was related to reduced emotional exhaustion and depersonalisation in part via less negative affect, less sleep-related impairment, and fewer daily physical symptoms³. Mindfulness was related to reduced feelings of low personal accomplishment in part via greater positive affect and fewer daily physical symptoms. In these models, results indicated that about 20 to 50 per cent of the total effect of mindfulness on burnout was explained by the mediator. The residual direct effects of mindfulness remained significant, however, indicating significant partial mediation.

Is mindfulness particularly protective for educators reporting greater stress and ambition? To investigate whether mindfulness was particularly protective under certain conditions, we tested interactions between mindfulness and two other variables, stress and ambition. As shown in Table 4, significant moderation (i.e. interaction effects) was observed in some models. Mindfulness moderated the effect of stress on emotional exhaustion such that educators high in mindfulness experienced lower emotional exhaustion than educators low in mindfulness, particularly among individuals reporting higher levels of stress (see Figure 1). In addition, the protective effects of mindfulness against emotional exhaustion (see Figure 2) and low personal accomplishment (see Figure 3) were more pronounced among more ambitious educators relative to less ambitious educators. In fact, among those low in mindfulness, more ambitious educators reported greater burnout than less ambitious educators; among those *high* in mindfulness, in contrast, more ambitious educators reported less burnout than less ambitious educators.

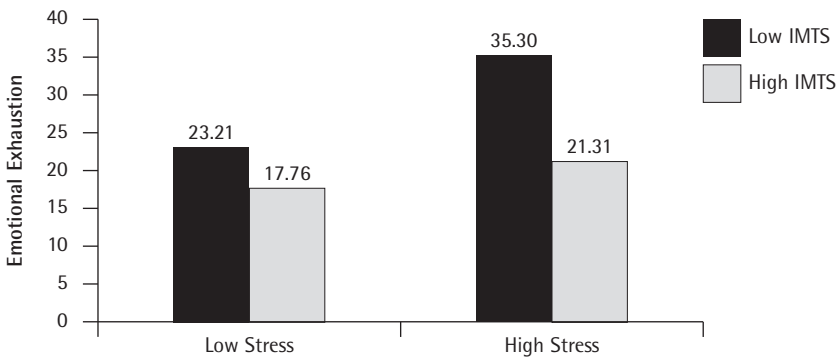
³ Results replicated across the IMTS and the FFMQ measures except in the following instance: Negative affect significantly mediated the effect of mindfulness on depersonalisation in the IMTS model but not the FFMQ model.

Table 4: Mindfulness as a moderator of the effects of stress and ambition on burnout.

	Moderation Models			
	Perceived Stress		Ambition	
	IMTS Model	FFMQ Model	IMTS Model	FFMQ Model
Emotional Exhaustion				
Effect of independent variable	0.31*	0.22+	0.00	-0.02
Effect of mindfulness	-0.39*	-0.50*	-0.54*	-0.65*
Interaction effect	-0.18+	-0.19+	-0.21+	-0.06
Depersonalisation				
Effect of independent variable	0.11	0.16	-0.02	-0.07
Effect of mindfulness	-0.52*	-0.39*	-0.54*	-0.44*
Interaction effect	0.03	0.04	-0.01	-0.14
Low Personal Accomplishment				
Effect of independent variable	0.16	0.22	-0.03	-0.08
Effect of mindfulness	-0.51*	-0.33*	-0.52*	-0.41*
Interaction effect	0.03	-0.05	-0.18+	-0.20+

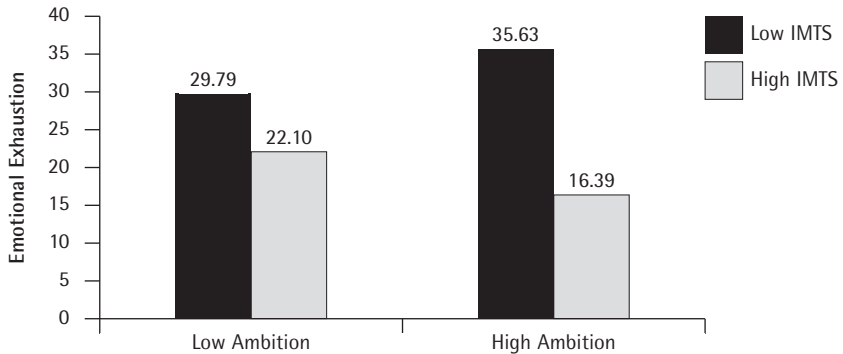
Note: All estimates are from OLS regression models (Ns 58–64) where each outcome was regressed on gender, years of experience in education, a measure of mindfulness, and an independent variable (stress or ambition). Standardised betas are shown above. IMTS=Interpersonal Mindfulness in Teaching (Total Score). FFMQ=Five Facet Mindfulness Questionnaire (Total Score). + $p < .10$; * $p < .05$.

Figure 1: Mindfulness moderates the effect of perceived stress on emotional exhaustion such that it is most protective at high levels of stress.



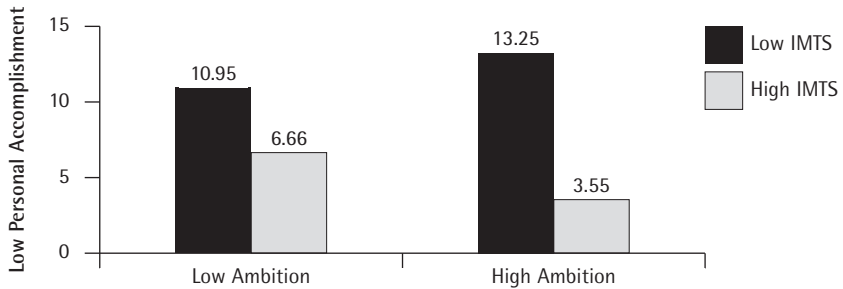
Results of the model using the IMTS are shown above, but the model using the FFMQ followed a similar pattern. Higher levels of emotional exhaustion indicate greater burnout. IMTS=Interpersonal Mindfulness in Teaching Scale (Total Score). FFMQ=Five Facet Mindfulness Questionnaire (Total Score). 'High'=1 standard deviation above the mean. 'Low'=1 standard deviation below the mean.

Figure 2: Mindfulness moderates the effect of ambition on emotional exhaustion such that it is most protective at high levels of ambition.



Results of the model using the IMTS are shown above; no significant moderation was detected in the model using the FFMQ. Higher levels of emotional exhaustion indicate greater burnout. IMTS=Interpersonal Mindfulness in Teaching Scale (Total Score). FFMQ=Five Facet Mindfulness Questionnaire (Total Score). 'High'=1 standard deviation above the mean. 'Low'=1 standard deviation below the mean.

Figure 3: Mindfulness moderates the effect of ambition on low personal accomplishment such that it is most protective at high levels of ambition.



Results of the model using the IMTS are shown above, but the model using the FFMQ followed a similar pattern. Higher levels of low personal accomplishment indicate greater burnout. IMTS=Interpersonal Mindfulness in Teaching Scale (Total Score). FFMQ=Five Facet Mindfulness Questionnaire (Total Score). 'High'=1 standard deviation above the mean. 'Low'=1 standard deviation below the mean.

Discussion

The current study contributes to a growing literature on the benefits of mindfulness among educators (e.g. Jennings et al., in press; Jennings et al., 2012; Roeser et al., 2012, 2013). Results indicated that educators' mindfulness – whether measured by the IMTS or the FFMQ – had a strong protective effect against emotional exhaustion, depersonalisation, and low personal accomplishment, three widely-studied components of burnout. This is an important finding given the rising percentage of educators who report experiencing job-related stress (MetLife, 2013; Smithers & Robinson, 2003) and research on the deleterious effects of burnout on educators' health and psychological well-being (Bellingrath et al., 2009; Guglielmi & Tatrow, 1996; Steinhardt et al., 2010). By preventing a 'burnout cascade' of deteriorating classroom climate, student misbehaviour, emotional exhaustion, and callousness (Jennings & Greenberg, 2009), having a mindful attitude may promote positive outcomes for both educators and their students.

This study addresses a gap in the literature by examining mediators of associations between mindfulness and outcomes (Leroy et al., 2013). Mediation analyses suggested that mindfulness impacted burnout through a variety of proximal effects on educators' daily experiences. For example, mindfulness was related to lower negative affect, sleep-related impairment, and daily physical symptoms, and these mediators, in part, explained the associations between mindfulness and emotional exhaustion and depersonalisation. Similarly, higher positive affect and lower daily physical symptoms partially mediated the association between mindfulness and low personal accomplishment. These pathways are consistent with prior work demonstrating links between mindfulness and these mediators (e.g. Brown & Ryan, 2003; Howell et al., 2008) and between these mediators and burnout (e.g. Chang, 2013; Jones & Youngs, 2012).

This study further sought to unpack the association between mindfulness and burnout by exploring the conditions under which the benefits of mindfulness are most pronounced. Moderation analyses indicated that mindfulness was particularly valuable among more stressed and more ambitious educators, which suggests that mindfulness may foster educators' resilience in the face of stress and work-related strain. These results align with the hypothesis that educators in high-risk, high-stress settings may have more to gain from using mindfulness strategies (Jennings et al., 2011), as well as with evidence that hard-working, ambitious educators who also exhibit greater resilience and self-regulatory skills experience less burnout than hard-working, ambitious educators who do not possess these skills (Kieschke & Schaarschmidt, 2008; Klusmann et al., 2008).

A few limitations of the current study should be noted. First, generalisability is limited by a small, homogenous sample. We do not know whether the associations documented here extend to educators in higher-risk, more urban settings. Second, all measures were obtained by self-report, which is not ideal because shared method variance might account for some of the observed associations. Finally, although we hypothesise a sequential process where mindfulness leads to burnout over time, in part through daily mediating experiences, cross-sectional data prevents us from drawing causal inferences. Longitudinal analyses are necessary to provide a more rigorous test of causal effects of mindfulness on burnout.

Despite these limitations, results of the current study suggest that building mindfulness among educators may be an effective strategy for preventing burnout and fostering health and well-being. Indeed, recent research indicates that mindfulness-based training programs for educators, such as the Cultivating Awareness and Resilience in Education (CARE) programme and the Stress Management and Relaxation Techniques (SMART)-in-Education programme,

represent an innovative approach to professional development. CARE involves emotion skills instruction, mindfulness/stress-reduction practices, and caring and listening practices delivered across five training days and multiple coaching sessions; SMART involves training in attention, awareness, emotion regulation, compassion, and other mindfulness practices delivered across 11 sessions. Both interventions have demonstrated efficacy in promoting mindfulness and reducing burnout among educators (Jennings et al., in press; Jennings et al., 2011; Roeser et al., 2013). Our own research group is currently testing a new intervention for educators, the Comprehensive Approach to Learning Mindfulness (CALM) programme, which involves daily yoga-based practices delivered in the school setting and also shows promise in promoting educators' health and well-being (Harris et al., 2013). Emerging work on these and other interventions supports the causal role of mindfulness in preventing burnout and underscores the potential of mindfulness-based approaches in promoting teacher well-being (for reviews, see Jennings et al., 2012; Roeser et al., 2012).

With teacher stress and attrition at alarming rates, promoting educators' health and social-emotional well-being is critical. The current study adds to accumulating evidence that mindfulness promotes resilience in educators and protects them

against burnout and its negative consequences. Cultivating mindfulness shows promise in fostering healthy educators, classrooms, and students, and a growing body of work underscores the added value of incorporating mindfulness into professional development for educators.

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References

- Allen, T.D. & Kiburz, K.M. (2012). Trait mindfulness and work-family balance among working parents: The mediating effects of vitality and sleep quality. *Journal of Vocational Behaviour, 80*, 372–379.
- Baer, R.A., Smith, G.T., Hopkins, J., Krietemeyer, J. & Toney, L. (2006). Using self-report assessment methods to explore facets of mindfulness. *Assessment, 13*, 27–45.
- Baron, R.M. & Kenny, D.A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality & Social Psychology, 51*, 1173–1182.
- Bellingrath, S., Weigl, T. & Kudielka, B.M. (2009). Chronic work stress and exhaustion is associated with higher allostatic load in female school teachers. *Stress: The International Journal on the Biology of Stress, 12*, 37–48.
- Bollen, K.A. & Stine, R. (1990). Direct and indirect effects: Classical and bootstrap estimates of variability. *Sociological Methodology, 20*, 115–140.
- Brown, K.W. & Ryan, R.M. (2003). The benefits of being present: Mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology, 84*, 822–848.

- Buyse, D.J., Yu, L., Moul, D.E., Germain, A., Stover, A., Dodds, N.E. & Pilkonis, P.A. (2010). Development and validation of patient-reported outcome measures for sleep disturbance and sleep-related impairments. *Sleep*, 33, 781–792.
- Carstensen, L.L., Turan, B., Scheibe, S., Ram, N., Ersner-Hershfield, H., Samanez-Larkin, G.R. & Nesselroade, J.R. (2011). Emotional experience improves with age: Evidence based on over 10 years of experience sampling. *Psychology and Aging*, 26, 21–33.
- Chang, M. (2013). Toward a theoretical model to understand teacher emotions and teacher burnout in the context of student misbehaviour: Appraisal, regulation and coping. *Motivation and Emotion*. Advance online publication.
- Cohen, S., Kamarck, T. & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behaviour*, 24, 386–396.
- Darling-Hammond, L. & Sykes, G. (2003). Wanted: A national teacher supply policy for education: The right way to meet the ‘Highly Qualified Teacher’ challenge. *Education Policy Analysis Archives*, 11, 1–55.
- Fredrickson, B.L., Cohn, M.A., Coffey, K.A., Pek, J. & Finkel, S.M. (2008). Open hearts build lives: Positive emotions, induced through loving-kindness meditation, build consequential personal resources. *Journal of Personality and Social Psychology*, 95, 1045–1062.
- Greenberg, M.T., Jennings, P.A. & Goodman, B. (2010). *The Interpersonal Mindfulness in Teaching Scale*. University Park, PA: Pennsylvania State University.
- Guglielmi, R.S. & Tatrow, K. (1996). Occupational stress, burnout, and health in teachers: A methodological and theoretical analysis. *Review of Educational Research*, 68, 61–99.
- Harris, A.R., Abenavoli, R.M., Katz, D.A., Jennings, P.A. & Greenberg, M.T. (2013, May). *Implementation and preliminary evaluation of an intervention to reduce stress and promote well-being among middle school educators: The CALM (Comprehensive Approach to Learning Mindfulness) daily stress reduction programme*. Poster presented at the 21st Annual Conference of the Society for Prevention Research, San Francisco.
- Hartney, E. (2008). *Stress management for teachers*. London: Continuum International.
- Howell, A.J., Digdon, N.L., Buro, K. & Sheptycki, A.R. (2008). Relations among mindfulness, well-being, and sleep. *Personality and Individual Differences*, 45, 773–777.
- Hülshager, U.R., Alberts, H.J.E.M., Feinholdt, A. & Lang, J.W.B. (2013). Benefits of mindfulness at work: The role of mindfulness in emotion regulation, emotional exhaustion, and job satisfaction. *Journal of Applied Psychology*, 98, 310–325.
- Hultell, D., Merlin, B. & Gustavsson, J.P. (2013). Getting personal with teacher burnout: A longitudinal study on the development of burnout using a person-based approach. *Teaching and Teacher Education*, 32, 75–86.
- Ingersoll, R.M. (2002). The teacher shortage: A case of wrong diagnosis and wrong prescription. *National Association of Secondary School Principals Bulletin*, 86, 16–31.
- Jennings, P.A. & Greenberg, M.T. (2009). The prosocial classroom: Teacher social and emotional competence in relation to child and classroom outcomes. *Review of Educational Research*, 79, 491–525.
- Jennings, P.A., Frank, J.L., Snowberg, K.E., Coccia, M.A. & Greenberg, M.T. (in press). Improving classroom learning environments by Cultivating Awareness and Resilience in Education (CARE): Results of a randomised controlled trial. *School Psychology Quarterly*.
- Jennings, P.A., Roeser, R. & Lantieri, L. (2012). Supporting educational goals through cultivating mindfulness: Approaches for teachers and students. In A. Higgins-D’Alessandro, M. Corrigan & P.M. Brown (Eds.), *The handbook of prosocial education* (pp.371–397). New York: Rowman & Littlefield.
- Jennings, P.A., Snowberg, K.E., Coccia, M.A. & Greenberg, M.T. (2011). Improving classroom learning environments by Cultivating Awareness and Resilience in Education (CARE): Results of two pilot studies. *Journal of Classroom Interaction*, 46, 37–48.
- Jones, N. & Youngs, P. (2012). Attitudes and affect: Daily emotions and their association with the commitment and burnout of beginning teachers. *Teachers College Record*, 114, 1–36.
- Kabat-Zinn, J. (1994). *Wherever you go, there you are: Mindfulness meditation in everyday life*. New York: Hyperion.
- Kemeny, M.E., Foltz, C., Cullen, M., Jennings, P., Gillath, O., Wallace, B.A. & Ekman, P. (2012). Contemplative/emotion training reduces negative emotional behaviour and promotes prosocial responses. *Emotion*, 12, 338–350.
- Kieschke, U. & Schaarschmidt, U. (2008). Professional commitment and health among teachers in Germany: A typological approach. *Learning and Instruction*, 18, 429–437.
- Klusmann, U., Kunter, M., Trautwein, U., Lüdtke, O. & Baumert, J. (2008). Teachers’ occupational well-being and quality of instruction: The important role of self-regulatory patterns. *Journal of Educational Psychology*, 100, 702–715.

- Krasner, M.S., Epstein, R.M., Beckman, H., Suchman, A.L., Chapman, B., Mooney, C.J. & Quill, T.E. (2009). Association of an educational programme in mindful communication with burnout, empathy, and attitudes among primary care physicians. *Journal of American Medical Association*, 302, 1284–1293.
- Kuppens, P., Van Mechelen, I., Nezlek, J.B., Dossche, D. & Timmermans, T. (2007). Individual differences in core affect variability and their relationship to personality and psychological adjustment. *Emotion*, 7, 262–274.
- Ladd, H.F. (2007). Teacher labour markets in developed countries. *The Future of Children*, 11, 201–217.
- Landy, F.J., Rastegary, H., Thayer, J. & Colvin, C. (1991). Time urgency: The construct and its measurement. *Journal of Applied Psychology*, 76, 644–657.
- Larsen, R.J. & Kasimatis, M. (1991). Day-to-day physical symptoms: Individual differences in the occurrence, duration, and emotional concomitants of minor daily illnesses. *Journal of Personality*, 59, 387–423.
- Leroy, H., Anseel, F., Dimitrova, N.G. & Sels, L. (2013). Mindfulness, authentic functioning, and work engagement: A growth modelling approach. *Journal of Vocational Behaviour*, 82, 238–247.
- Maslach, C., Jackson, S.E. & Leiter, M.P. (1997). Maslach Burnout Inventory. In C.P. Zalaquett & R.J. Wood (Eds.), *Evaluating stress: A book of resources* (pp.191–218). Lanham, MD: Scarecrow Education.
- Maslach, C., Schaufeli, W.B. & Lieter, M.P. (2001). Job burnout. *Annual Review of Psychology*, 52, 397–422.
- McCormick, J. & Barnett, K. (2011). Teachers' attributions for stress and their relationships with burnout. *International Journal of Educational Management*, 25, 278–293.
- Melamed, S., Shirom, A., Toker, S., Berliner, S. & Shapira, I. (2006). Burnout and risk of cardiovascular disease: Evidence, possible causal paths, and promising research directions. *Psychological Bulletin*, 132, 327–353.
- MetLife (2013). *The MetLife Survey of the American Teacher: Challenges for school leadership*. New York: Metropolitan Life Insurance Company.
- Montgomery, C. & Rupp, A.A. (2005). A meta-analysis exploring the diverse causes and effects of stress in teachers. *Canadian Journal of Education*, 28, 458–486.
- Peiro, J.M., Gonzalez-Roma, V., Tordera, N. & Manas, M.A. (2001). Does role stress predict burnout over time among health care professionals? *Psychology & Health*, 16, 511–525.
- Prazak, M., Critelli, J., Martin, L., Miranda, V., Purdum, M. & Powers, C. (2012). Mindfulness and its role in physical and psychological health. *Applied Psychology: Health and Well-being*, 4, 91–105.
- Preacher, K.J. & Hayes, A.F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behaviour Research Methods*, 40, 879–891.
- Reibel, D.K., Greeson, J.M., Brainard, G.C. & Rosenzweig, S. (2001). Mindfulness-based stress reduction and health-related quality of life in a heterogeneous patient population. *General Hospital Psychiatry*, 23, 183–192.
- Roeser, R.W., Schonert-Reichl, K.A., Jha, A., Cullen, M., Wallace, L., Wilensky, R. & Harrison, J. (2013). Mindfulness training and reductions in teacher stress and burnout: Results from two randomised, waitlist-control field trials. *Journal of Educational Psychology*. Advance online publication.
- Roeser, R.W., Skinner, E., Beers, J. & Jennings, P.A. (2012). Mindfulness training and teachers' professional development: An emerging area of research and practice. *Child Development Perspectives*, 6, 167–173.
- Shulman, L.S. (2004). *The wisdom of practice: Essays on teaching, learning, and learning to teach*. San Francisco: Jossey-Bass.
- Shrout, P.E. & Bolger, N. (2002). Mediation in experimental and nonexperimental studies: New procedures and recommendations. *Psychological Methods*, 7, 422–445.
- Smithers, A. & Robinson, P. (2003). *Factors affecting teachers' decisions to leave the profession (Research Report No. RR430)*. London: DfES.
- Soenens, B., Sierens, E., Vansteenkiste, M., Dochy, F. & Goossens, L. (2012). Psychologically controlling teaching: Examining outcomes, antecedents, and mediators. *Journal of Educational Psychology*, 104, 108–120.
- Steinhardt, M.A., Smith Jaggars S.E., Faulk, K.E. & Gloria, C.T. (2010). Chronic work stress and depressive symptoms: Assessing the mediating role of teacher burnout. *Stress and Health*, 27, 420–429.
- Watson, D., Clark, L. & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology*, 54, 1063–1070.