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The impact of mindfulness on leadership effectiveness in a health care setting: a pilot study

Mindfulness
on leadership
effectiveness

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Abstract

Purpose – The purpose of this paper is to examine the impact of mindfulness awareness practice (MAP) on mid-level health-care managers' leadership.

Design/methodology/approach – In total, 11 mid-level health-care managers in eastern Canada took part in an intensive weekend retreat and a follow-up webinar on mindfulness awareness. Perceived stress and leadership effectiveness were assessed pre- and post-intervention (i.e. four and eight weeks). A control group ($n=10$) also completed the same measures twice. Additionally, informants ($n=28$) provided assessments of participants' leadership pre- and post-intervention. Follow-up interviews were carried out with eight participants 12-16 weeks post-intervention.

Findings – In comparison to controls, retreat participants showed significant increases in mindfulness and corresponding decreases in stress that were sustained across eight weeks post-retreat; retreat participants reported significant positive changes in their leadership effectiveness that were corroborated by informants. Qualitative data, however, suggest that sustaining a mindfulness practice presents significant challenges to middle managers in a health care setting.

Research limitations/implications – The findings are useful to management working in health services that are plagued by increasing demands and changes. Despite the small sample and lack of random assignment, the pilot data support the efficacy of MAP in improving leadership.

Originality/value – Little empirical research supports the claim that MAP enhances leadership. The present study employed a mixed methods approach to address this gap and demonstrates the potential benefits of MAP among mid-level managers.

Keywords Leadership, Stress, Leadership effectiveness, Mindfulness, Health care managers, Mindfulness awareness practice

Paper type Research paper



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Administrators and researchers alike recognize the importance of leadership for fulfilling an organization's mission. One notable sector where leadership is particularly important is health services where technology, innovation, privatization, and demographic shifts have all intensified the pace and nature of change. A recent study for the UK National Institute for Health suggests that many middle managers in health services are working in "extreme jobs" characterized by long hours, fast pace, and high intensity; over half of those surveyed believed their jobs to be unmanageable (Buchanan *et al.*, 2013). The work intensity, perpetual contact, and high-stakes climate that characterize many health care settings perpetuate norms that may encourage managers to place other roles ahead of facilitating healthy workplace practices (Bryant and Stensaker, 2011). Yet such environments are the very ones that should adopt and encourage health and wellness amongst mid-level managers as a means of enabling and facilitating organizational missions.

One approach to enhance well-being concerns targeting individuals with the expectation that improvements in personal health and well-being will translate to effective workplace practices including leadership. Mindfulness practices may have the potential to contribute to leadership effectiveness in this domain (Grandy and Holton, 2013; Karssiens *et al.*, 2014). The specific mechanism by which mindfulness may impact leadership involves the reduction of stress purported to result from increasing demands associated with leadership in organizations that are plagued by continual and unpredictable changes. Thus, the purpose of the present research was to explore whether a mindfulness intervention would reduce perceptions of stress and positively impact leadership. We begin with an overview of the research context followed by a brief summary of the literature on leadership and mindfulness to provide a rationale for the present study. We then detail the present research study including the methodology, results and discussion. We conclude the paper with implications for management practice.

The Canadian context

Like its provincial and territorial counterparts, the Canadian Province of New Brunswick has had to respond to socio-economic pressures with strategic and transformational change (Grandy and Holton, 2013). In 2008, New Brunswick's eight existing Regional Health Authorities were consolidated to reduce duplication of services (and expenses) and to achieve parity in the access and delivery of health care across the province. Four of these regions were amalgamated into one authority and rebranded as Horizon Health Network (Horizon); a network serving a population of 700,000 in a largely rural environment with a population density of 10.5 per km².

From a management perspective, this restructuring of services meant the integration of different organizational structures, operational processes and unique subcultures across the four regional authorities, requiring leadership and management across a geographically dispersed organization. With a \$1 billion budget and 12,900 employees distributed across 102 facilities, the scale of change was extensive and the impact significant (Grandy and Holton, 2013).

Theoretical backdrop

Leadership

Given the nature of health services organizations, order and consistency are fundamental to ensuring quality and safety of patient care. At the same time, the persistent and often

unpredictable nature of change in health services systems increasingly emphasizes the duality of skills needed to successfully manage with an effective leadership style. This duality is pertinent to middle managers in health systems as they often combine a clinical role in patient care with supervision of staff, budget, and planning responsibilities. As managers, they coordinate and monitor quality and safety standards; yet at the same time, they are called upon to demonstrate leadership in motivating staff and mobilizing system change.

Whereas the primary function of management is to produce order and consistency, the primary function of leadership is to produce change and movement (Kotter, 1990). Northouse (2013) describes the distinction between management and leadership as: "To manage means to accomplish activities and master routines, whereas to lead means to influence others and create visions for change" (p. 13). As such, we understand management as an assigned, functional role whereas leadership entails an approach or style of role execution. During times of radical change, leadership becomes critical to coalition building, hope, and optimism (Avolio and Gardner, 2005). Leadership is understood here to be a relational process of building and maintaining relationships and networks, establishing trust with others, demonstrating empathy, coping with change, motivating and inspiring others, fusing operational and strategic foci, and deploying resources (McCallum and O'Connell, 2009).

Many organizations rely on leadership to endorse their values and goals and to effectively direct and motivate others within the work environment. Hence, organizations that are challenged by fiscal cutbacks and changing policy may place even more demands on their leaders. Leading "from the middle" is especially fraught with the challenges of brokering strategic change (McKinley and Scherer, 2000). The role as agents of change in executing strategic direction will only increase in importance as health systems continue to respond to complex adaptive change. More relational and less-hierarchical management styles tend to enhance: receptivity to change (Kakabadse and Kakabadse, 2003); employee perceptions of management competence and integrity; and the view that work is challenging and satisfying (Grunberg *et al.*, 2008). Positive relational behaviour is associated with leadership effectiveness (Gilbert *et al.*, 2015). Grandy and Holton (2013) extend this to the health care setting and contend that a focus on leadership development grounded in trust, transparency, and self-awareness translates into a healthy sense of community among members of the organization.

One factor that may impede the development of effective leadership concerns leaders' perceptions of the demands placed on them. The high demands of work with the perception of having minimal control set the stage for the experience of stress. The pressures on health systems' managers are particularly intense leading to increased stress and potential burnout with resultant attrition of both leaders and followers across the system. Research consistently supports the pivotal role that leaders play in creating healthy workplace environments that contribute to employee retention (Lowe, 2010).

Shirey (2006) contends that psychological engagement of employees by authentic leaders may be a key mechanism by which healthy workplace environments are created. Avolio *et al.* (2004) describe authentic leaders as encouraging open communication, engaging followers, and sharing critical information. While the leadership challenge in health services is widely recognized (e.g. Kelloway and Day, 2005), the challenge is in finding practical and effective means of building and sustaining leadership competence across the system. Leadership development is a means through which engagement and

workplace well-being can be positively affected (Gardner *et al.*, 2005). As an outcome of a leadership development needs assessment, Grandy and Holton (2013) suggested that mindfulness practices have the potential to contribute to leadership effectiveness in this domain and this is supported by Karssiens *et al.* (2014) who contend that mindfulness through self-awareness of the senses, body and breathing contributes to leadership effectiveness and creativity. Additionally, Sauer and Kohls (2011) propose that mindfulness may benefit leadership by contributing to improvements in information processing, interpersonal interactions, and decision making. Others have suggested that mindfulness contributes to emotional intelligence which, in turn, contributes to higher positive affect, lower negative affect, and greater life satisfaction (Schutte and Malouff, 2011; Smollan and Parry, 2011). Indeed, recent research shows that increasing mindfulness contributed to more job satisfaction and less stress as a result of increased ability to regulate one's emotions (Hülshleger *et al.*, 2013). Moreover, Leroy *et al.* (2013) show that mindfulness is a precursor to authenticity. To better understand how mindfulness impacts leadership, we examined extant research demonstrating its utility in a variety of domains.

Mindfulness

Mindfulness refers to a mode of consciousness that involves being attentive to and aware of what is occurring in the present moment (Brown and Ryan, 2003). A variety of techniques are used to cultivate mindfulness including meditative practices and a focus on breathing. A description of the techniques used in the present research is provided in the method section of this paper. Within psychology, clinicians and researchers alike have increasingly incorporated mindfulness in their work (Baer, 2003). Indeed, a PsycInfo search using the keyword "mindfulness" in a title yielded 2,419 hits[1].

In two meta-analyses (Hofman *et al.*, 2010; Mars and Abbey, 2010), mindfulness improved anxiety and depressive mood symptoms. Other research shows that mindfulness awareness practice (MAP) benefits those suffering from chronic pain (e.g. Veehof *et al.*, 2011), fibromyalgia (e.g. Kaplan *et al.*, 1993), irritable bowel syndrome (e.g. Zernicke *et al.*, 2013), and chronic fatigue syndrome (e.g. Suraway *et al.*, 2005). Thus, the accumulating evidence suggests that people trained in MAP benefit psychologically and physically. Moreover, such benefits appear to arise from the reduction in stress known to be the primary outcome of MAP (Kabat-Zinn, 2003). The reduction in stress is purported to be responsible for improved physical health and resiliency in response to psychological distress that presupposes clinical disorders. Thus, MAP has the potential to be useful in a variety of domains and contexts.

Organizational and management researchers are beginning to consider the applicability of mindfulness as a means of enhancing managerial focus, strategic decision making, and resource utilization. For example, mindfulness relates positively to overall job performance (Dane and Brummel, 2014), higher order learning (Espedal, 2009), judgement accuracy (Kiken and Shook, 2011), and to insight-related problem solving (Ostafin and Kassman, 2012). Langer (1989) posits mindfulness as a strategic moderator in the context of managing uncertainty. Dane (2011) purports that mindfulness increases attention to multiple external, affective, and intuitive stimuli, enabling individuals with high task expertise to effectively cope in dynamic, high-velocity environments. The latter involve a series of interdependent decisions in real time, intense negotiations, frequent emergency responses, and crisis management. Additionally, leaders' mindfulness is linked to better performance of followers (e.g. Reb *et al.*, 2012).

There are at least two mechanisms by which MAP might foster leadership effectiveness. First, MAP is associated with a reduction of stress in the individual who practices mindfulness awareness. Certainly the stress buffering effect of mindfulness is supported by evidence that mindfulness interventions improve a broad range of health outcomes (Creswell and Lindsay, 2014). Within the context of leadership, improved mental and physical health likely contribute to better individual functioning including the very attributes desirable in effective leaders (Hülshager *et al.*, 2013). Second, increasing momentary awareness and attentiveness likely means that the leader is more attune to the task at hand which may be particularly relevant when interacting with others. Supportive evidence comes from literature showing that others view mindful leaders as genuine (e.g. Kawakami *et al.*, 2000) and that mindfulness contributes to authenticity (Leroy *et al.*, 2013). Overall, the research supports the utility of MAP for improving the effectiveness of desirable attributes amongst leaders and highlights the fact that there is a paucity of research experimentally evaluating the relationship between MAP and leadership effectiveness.

Overview of the present study

This pilot study was undertaken to determine the feasibility and effectiveness of an intensive weekend mindfulness training session for sustained personal practice among mid-level managers in a health care setting. Whereas many mindfulness-based interventions involve an instructor-led group session once a week for eight weeks, middle managers may be reluctant to commit to a longitudinally staggered programme because of the demands of work and family. Thus, we explored whether a time-intensive intervention would yield effective training outcomes and sustained practice among participants. If participants gained skills in the practice of mindfulness, we expected to uncover decreases in stress and corresponding changes in leadership effectiveness. Specifically, we posit that sustained MAP will result in middle managers viewing themselves as more effective leaders and this will be supported by subordinates, peers, and supervisors.

To address our research question, we began with a quantitative approach where we first examined whether retreat participants' perceptions of stress and leadership changed across time (pre-intervention, four weeks post-intervention and eight weeks post-intervention). We then compared retreat participants' perceptions to those of a control group of Horizon managers with the expectation that retreat participants would perceive changes in their own levels of stress and leadership whereas the control group would not. To corroborate the self-perceptions of retreat participants, we asked informants (supervisors, peers, subordinates) to report on the leadership effectiveness of the retreat participants. In line with the literature reviewed, we specify three hypotheses. First, retreat participants will perceive less stress following the intervention and will perceive less stress in comparison to the control group. Second, retreat participants will perceive themselves as more effective leaders and that following the intervention and in comparison to a control group, will report positive changes in attributes associated with authenticity. Moreover, we expected to demonstrate that the perceived changes in authenticity arising from MAP would be mediated by reported stress levels. Third, we hypothesized that the changes reported by retreat participants would be corroborated by informants such that supervisors, peers, and subordinates would also perceive positive changes in the leadership effectiveness of retreat participants.

This quantitative approach was then followed by a qualitative phase for the purpose of explaining the initial results in more depth (Morgan, 1998). Such a mixed methods approach was expected to yield a better understanding of this research than either a quantitative or qualitative method alone would (Creswell, 2009). Employing thematic analysis, we explored retreat participants' perceptions of the impact of MAP on aspects of work and explored barriers to continued practice.

Method

Participants

Retreat participants. A recruitment e-mail was sent by Horizon's Organizational Effectiveness department to all middle- and senior-level supervisory/managerial employees (initial pool of approximately 500). This e-mail invited potential participants to engage in a weekend intensive retreat designed to build personal mindfulness practice with the intention of fostering effective leadership. Two reminder e-mails were sent.

In total, 20 individuals responded favourably to this recruitment strategy of which 11 women proceeded to participate in the mindfulness intervention as well as the survey portion of the study. The participants' average age was 50.36 years (35-59 years). All participants were Caucasian, 82 per cent ($n=9$) were married with 64 per cent ($n=7$) having at least one dependent. Participants defined their position as: manager ($n=8$); director ($n=2$); or consultant ($n=1$). Two participants indicated previous training in mindfulness and continued meditative practices.

Control participants. An independent sample of management-level Horizon employees participated in the survey portion of this study as a control group ($n=10$; 7 female) in return for a \$20.00 gift card. The average age was 52.1 years (46-62 years). All ten indicated Caucasian ethnicity with 70 per cent being married and 80 per cent having at least one dependent. Six participants described themselves as directors, two as managers, and two as consultants. Three indicated previous training in mindfulness (two continued regular practice). Having mostly women participate in the present study (as retreat and control participants) is consistent with the demographic of middle managers in health care in New Brunswick, Canada.

Informants. Seven supervisors, 13 peers, and eight subordinates provided assessments of leadership effectiveness for the retreat participants. No other information was collected from informants.

Procedure

Self-reported measures were collected at least two weeks prior to the start of the intervention (baseline: Time 1 pre-intervention), four weeks post-intervention (Time 2), and at eight weeks post-intervention (Time 3). Control participants completed the same measures twice with approximately a four week interval. Informants completed indices of leadership effectiveness before the intervention and approximately eight weeks later.

The intervention, an intensive weekend retreat, explored the nature of mindfulness and the intentional cultivation of attention, awareness, and attitudes, with the goal of establishing a personal practice. The weekend intensive training was to be followed by continued personal practice with the invitation to further explore what it means to be alive and working in various forms and levels of management, and to specifically investigate and reflect on core values and attitudes that might foster excellence in leadership. Specific readings and suggestions to guide practice, reflection, and understanding were offered.

The intensive training comprised 16 hours of guided practice starting Friday evening from 6:30-9:30 PM and running Saturday from 9:00-4:00 and Sunday from 9:00-3:00. The 16 hours were divided into 14 training sessions, each with a specific intention and theme and generally following the systematic development of practice found in traditional forms of mindfulness-based interventions. Practices included the raisin meditation, focused attention incorporating the body scan, awareness of breath, body, sounds, thoughts and emotions, eating, movement, walking, and open awareness followed by reflection and inquiry. Lunches were taken in silence.

Training manuals with specific instructions were provided at the end of the retreat to guide personal practice and reflection at home and at work. Representative guided meditations were recorded and provided to participants in MP3 format as a means of helping them with subsequent personal practice. A follow-up practice session and reflective inquiry took place eight weeks after the intervention via a two hour webinar. Telephone interviews were conducted with eight participants 12-16 weeks post-retreat by two of the present study's authors. The remaining three participants declined to be interviewed.

Materials

Following informed consent, participants provided demographic information (e.g. age, relationship status at Time 1) and completed the following measures in the order presented here. Measures were chosen based on evidence of reliability, validity, and sensitivity.

Mindfulness. Brown and Ryan's (2003) Mindful Attention Awareness Scale is a 15-item self-report scale that requires respondents to indicate the frequency of various experiences (e.g. "I rush through activities without being really attentive to them") using a scale from 1 (almost always) to 6 (almost never). Responses were averaged such that scores ranged from 1 to 6 with higher values indicating mindfulness. Brown and Ryan report internal consistency reliability coefficients above 0.85 in community samples and evidence of validity was provided (i.e. inverse relations with negative affect, depression, and anxiety). Thus, this scale was deemed appropriate for the present sample and the goals of the study. Cronbach's α was 0.81, 0.90, and 0.92 for baseline, Time 1, and Time 2, respectively, indicating adequate reliability.

Perceived stress. The ten-item perceived stress scale (Cohen *et al.*, 1983) requires participants to indicate the frequency to which they have found situations to be stressful over the last month (e.g. "In the last month, how often have you felt that you were on top of things?" – reverse coded item) using a scale from 0 (never) to 4 (very often). Items were summed to yield a possible range from 0 to 40 with higher scores indicating greater perceived stress. Cohen and Williamson (1988) show associations between scale scores and indices of health, health behaviours, depressive, and physical symptomology. Cronbach's α was 0.80, 0.90, and 0.92 for baseline, Time 1, and Time 2, respectively, indicating adequate reliability.

Leadership effectiveness. Anderson's (2006, 2012) five-item scale assessing leadership effectiveness requires respondents to indicate the extent to which they agree with each statement (e.g. "I am an example of an ideal leader") using a nine-point scale from 1 (not at all) to 9 (extremely). Anderson reports internal consistency reliability coefficients above 0.75 and provides evidence of scores' relationships with related leadership constructs. Scores for this scale were summed to yield a possible

range from 5 to 45 with higher scores indicating more effectiveness. Cronbach's α was 0.93, 0.89, and 0.92 for baseline, Time 1, and Time 2, respectively, indicating adequate reliability.

Authentic leadership. The Authentic Leadership Questionnaire (ALQ; Walumbwa *et al.*, 2008) was used to assess four components of authentic leadership. Participants indicated the frequency to which each statement captures their leadership style (e.g. "As a leader I seek feedback to improve interactions with others") using a scale from 0 (not at all) to 4 (frequently, if not always). The transparency subscale assesses the extent to which a leader reinforces openness with others and comprises five items. The ethical/moral subscale assesses the degree to which the leader sets high standards for moral/ethical conduct and comprises four items. The balanced processing subscale assesses the extent to which a leader seeks the views of others and comprises three items. The self-awareness subscale assesses the degree to which a leader is aware of his/her strengths and weaknesses and comprises four items. Items were summed to yield total scores for each subscale. We used this questionnaire because it can be used for self-assessments as well as assessments by others. Cronbach's α 's were above 0.66 for all subscales of the ALQ at all three points in time with two exceptions. Specifically, the internal consistency reliability for the transparency subscale at Time 2 was modest at 0.60 and the internal consistency reliability for the balanced processing subscale at Time 3 was 0.50.

Interview questions. Following a semi-structured approach, the interviews explored participants' experiences of mindfulness practice post-retreat, its impact on their personal and professional lives and the challenges and benefits to sustaining practice (see Appendix). The interviews, each lasting from 30 to 45 minutes, were taped and transcribed. Seven of the interviewees agreed to be quoted anonymously on their research ethics consent forms. They are indicated in this paper using participant numbers. One interviewee declined to be quoted.

Results

Retreat participants' perceptions

Given the small sample size, a non-parametric Friedman test of differences among repeated measures was conducted to examine mindfulness across three points in time for retreat participants. This analysis rendered a significant χ^2 value of 9.478, $p = 0.009$. *Post hoc* analysis with Wilcoxon signed-rank tests showed that scores on mindfulness were lower pre-intervention ($M = 3.50$, $SE = 0.29$) than those at four weeks post-intervention ($M = 4.35$, $SE = 0.16$; $Z = -2.366$, $p = 0.018$) and at eight weeks post-intervention ($M = 4.30$, $SE = 0.28$; $Z = -2.371$, $p = 0.018$) but no differences between four and eight weeks post-intervention ($Z = -0.405$, $p = 0.069$).

A second Friedman test of differences among repeated measures was used to examine perceived stress across time rendering a χ^2 value of 20.462, $p < 0.001$. Higher perceived stress was found at pre-intervention ($M = 18.86$, $SE = 2.26$) compared to four weeks ($M = 11.00$, $SE = 1.80$; $Z = -2.937$, $p = 0.003$) and eight weeks post-intervention ($M = 10.43$, $SE = 2.21$; $Z = -2.937$, $p = 0.003$) and between four and eight weeks post-intervention ($Z = -2.251$, $p = 0.024$). Thus, the retreat was effective in improving individuals' momentary awareness and reducing perceived stress. Importantly, the changes observed in mindfulness and in perceived stress were maintained across time.

The means and standard deviations for indices of leadership are shown in Table I. Friedman tests for repeated measures demonstrated significant improvements in

leadership effectiveness ($\chi^2 = 6.87, p = 0.032$) and *post hoc* analysis with Wilcoxon signed-rank tests indicated significant differences between pre-intervention and four weeks post-intervention ($Z = -2.214, p = 0.027$) and eight weeks post-intervention ($Z = -2.558, p = 0.011$) but not between four and eight weeks post-intervention ($Z = -1.084, p = 0.279$). For authentic leadership, differences were found for balanced processing ($\chi^2 = 7.00, p = 0.03$) with significant differences between pre-intervention and four weeks post-intervention ($Z = -2.070, p = 0.038$), marginal differences between pre-intervention and eight weeks post-intervention ($Z = -1.845, p = 0.065$) and no differences between four and eight weeks post-intervention ($Z = -1.414, p = 0.157$). There were no significant improvements for transparency ($\chi^2 = 4.353, p = 0.113$), ethical/moral subscale ($\chi^2 = 0.444, p = 0.801$), or for self-awareness ($\chi^2 = 3.00, p = 0.223$).

Comparisons between retreat and control participants

Up to this point, we showed that participants perceived significant changes in mindfulness, stress, and two aspects of leadership. To assess whether these changes differed from our control sample, we undertook $2(\text{Time}) \times 2(\text{group})$ mixed ANOVAs. The between subject variable was group (control vs retreat) and the within subject variable was time and included pre-intervention and four weeks post-intervention. To limit the number of statistical tests, we conducted analyses for mindfulness, perceived stress, perceived leadership efficacy, and the balanced processing subscale of the ALQ because retreat participants showed changes on these measures.

Table II shows descriptive statistics. For mindfulness, there was a significant main effect for time such that scores on mindfulness were higher at Time 2, $F(1,12) = 16.68$,

Variable	Baseline Mean (SE)	Four weeks Mean (SE)	Eight weeks Mean (SE)
Leadership efficacy	31.00 (2.39) _a	37.17 (1.49) _b	35.50 (1.95) _b
Transparency	3.26 (0.15)	3.40 (0.12)	3.51 (0.11)
Moral/ethical	3.43 (0.21)	3.46 (0.20)	3.57 (0.22)
Balanced processing	3.10 (0.26) _a	3.52 (0.16) _b	3.71 (0.11) _b
Self-awareness	3.04 (0.28)	3.36 (0.16)	3.36 (0.25)

Table I.
Changes in
perceptions of
leadership
across time

Notes: $n = 11$. Means with different subscripts for leadership effectiveness and balanced processing indicate significant differences. The difference for balanced processing from baseline to eight weeks post-intervention was marginally significant as indicated in text

Variable	Control		Retreat	
	Time 1 <i>M</i> (SE)	Time 2 <i>M</i> (SE)	Time 1 <i>M</i> (SE)	Time 2 <i>M</i> (SE)
Mindfulness	3.58 (0.24) _a	3.61 (0.19) _a	3.55 (0.24) _a	4.40 (0.19) _b
Perceived stress	16.28 (1.88) _a	14.88 (2.10) _a	18.86 (2.01) _a	11.00 (2.25) _b
Leadership efficacy	29.88 (2.40) _a	34.00 (1.57) _b	31.00(2.77) _a	37.17 (1.81) _b
Balanced processing	3.17 (0.20) _a	3.33 (0.18) _b	3.10 (0.21) _a	3.52 (0.20) _b

Table II.
Comparison between
retreat and control
participants

Notes: $n = 21$. Means with different subscripts indicate significant differences

$p = 0.002$, $\eta^2 = 0.58$ and a non-significant main effect for group, $F(1,12) = 1.86$, $p = 0.20$, $\eta^2 = 0.13$. The effect of time was qualified by a significant interaction, $F(1,12) = 14.52$, $p = 0.002$, $\eta^2 = 0.55$. As seen in Table II, retreat participants scored significantly higher at Time 2 whereas control participants did not differ from Time 1 to Time 2 supporting the hypothesis that the intervention was effective at increasing momentary awareness for retreat participants.

A similar pattern was found for perceived stress, the effect of group was not significant, $F(1,13) = 0.06$, $p = 0.81$, $\eta^2 = 0.005$. There was a significant effect of time such that participants perceived less stress at Time 2, $F(1,13) = 14.375$, $p = 0.002$, $\eta^2 = 0.53$. Importantly, this effect was qualified by a significant interaction as seen in Table II, retreat participants perceived significantly less stress four weeks post-intervention whereas control participants did not, $F(1,13) = 6.98$, $p = 0.02$, $\eta^2 = 0.35$.

For perceived leadership efficacy, the effect of group was not significant, $F(1,12) = 0.62$, $p = 0.45$, $\eta^2 = 0.05$. There was a significant effect of time such that participants scored higher at Time 2, $F(1,12) = 12.183$, $p = 0.004$, $\eta^2 = 0.50$. Additionally, the interaction was not significant, $F(1,12) = 0.48$, $p = 0.50$, $\eta^2 = 0.04$, suggesting that gains in leadership efficacy were similar for both groups. A similar pattern was found for scores on balanced processing whereby there was no significant effect for group, $F(1,13) = 0.06$, $p = 0.82$, $\eta^2 = 0.004$. There was a significant effect of time such that participants scored higher at Time 2, $F(1,13) = 7.22$, $p = 0.02$, $\eta^2 = 0.36$. Additionally, the interaction was not significant, $F(1,13) = 1.40$, $p = 0.10$, $\eta^2 = 0.10$, however, the means presented in Table II show the expected pattern.

Despite the small sample size, we ran a preliminary test of our hypothesis that perceived changes in leadership would be mediated by perceptions of stress. We focused on leadership effectiveness as the outcome because this index showed the strongest changes across time. As recommended for small samples, we used non-parametric bootstrapping analyses (see Preacher and Hayes, 2004; Preacher *et al.*, 2007) to test the mediational model of stress as a mediator of the relationship between mindfulness and leadership effectiveness. In these analyses, mediation is significant if the 95 per cent bias corrected and accelerated confidence intervals for the indirect effect do not include 0 (Preacher and Hayes, 2004; Preacher *et al.*, 2007). Results based on 1,000 bootstrapped samples indicated that whilst the total effect of mindfulness on leadership effectiveness approached significance (TE = 2.83, SE = 2.11, $p = 0.20$), the direct effect was not significant (DE = 0.22, SE = 2.01, $p = 0.92$). Thus, the hypothesis that perceived stress mediates the relationship between mindfulness and leadership effectiveness seems tenable (lower 95 per cent CI = 0.0764, upper 95 per cent CI = 8.1965), such that participants who indicated high levels of mindfulness were less likely to perceive stress, and through low levels of perceived stress, more likely to score higher on the index of leadership effectiveness. Because zero is not in the 95 per cent confidence interval, the indirect effect is significantly different from zero at $p < 0.05$ (two-tailed).

Informant reports

To independently assess participants' leadership, we examined informants' reports. Specifically, we conducted four separate mixed ANOVAs where the between subject variable was group (supervisor, peer, subordinate) and time was the within subject variable. Descriptive statistics are provided in Table III for each index of authentic leadership. As hypothesized, ratings of transparency increased from Time 1 to Time 2, $F(1,25) = 5.47$, $p = 0.03$, $\eta^2 = 0.18$, and ratings did not differ across the three groups,

$F(2,25) = 0.24, p = 0.79, \eta^2 = 0.02$. The interaction was not significant indicating that supervisors, peers, and subordinates, equally perceived similar changes in the leadership of participants, $F(2,25) = 1.31, p = 0.29, \eta^2 = 0.10$.

Ratings on the moral/ethical subscale did not change from Time 1 to Time 2, $F(1,24) = 0.75, p = 0.40, \eta^2 = 0.03$ nor did they differ across groups, $F(2,24) = 0.06, p = 0.95, \eta^2 = 0.005$. The interaction was also not significant, $F(2,24) = 0.07, p = 0.93, \eta^2 = 0.006$. For balanced processing, ratings significantly improved from Time 1 to Time 2, $F(1,25) = 11.14, p = 0.003, \eta^2 = 0.31$ and did not differ as a function of group, $F(2,25) = 0.58, p = 0.57, \eta^2 = 0.05$. Nor was the interaction significant, $F(2,25) = 0.27, p = 0.76, \eta^2 = 0.02$.

Lastly, for self-awareness, ratings did not significantly differ across time, $F(1,24) = 0.97, p = 0.34, \eta^2 = 0.04$ or as a function of group, $F(2,24) = 0.06, p = 0.95, \eta^2 = 0.005$. The interaction was also not significant, $F(2,24) = 0.20, p = 0.82, \eta^2 = 0.18$. Thus, for two of the subscales, informants reported significant improvements in participants' leadership. Moreover, given the focus on increasing mindfulness, the two subscales impacted were those that target interactions with others and therefore appear to be conceptually more relevant compared to the two subscales not affected. Changes in the moral/ethical and self-awareness subscales may require a longer time frame to produce significance.

Qualitative findings

The retreat experience. Participants were asked to reflect on the retreat experience. Their comments suggest that the motivation to attend stemmed from a desire to better cope with the stresses and strains of hectic workplace demands and that the retreat had helped to reduce levels of stress and anxiety and enabled them to become aware of their physical and emotional states:

I've definitely gone through a turbulent time here at work [...] it was good to help me get through that (Participant 1).

I found very quickly that the [retreat practices] really, really helped relax my brain. And I really found that that energized me to be able to think more [...]. I'm also finding that I'm staying in tune with conversations that I would normally tune people out (Participant 2).

It helped to decrease my anxiety and helped me focus more and to be more attentive to my employees (Participant 6).

Mindfulness as practiced. All eight participants indicated that they had sustained some level of practice post-retreat. The technique most frequently mentioned was deep breathing followed by mindful walking, 3 and 5 minute meditation and body scan. A number of participants described how they had integrated aspects of MAP into other

Variable	Supervisor		Peers		Subordinates	
	T1 M (SE)	T2 M (SE)	T1 M (SE)	T2 M (SE)	T1 M (SE)	T2 M (SE)
Trans	2.94 (0.24)	3.29 (0.21)	2.98 (0.18)	3.25 (0.15)	3.28 (0.23)	3.28 (0.19)
Moral	3.36 (0.21)	3.43 (0.21)	3.25 (0.16)	3.40 (0.16)	3.34 (0.20)	3.41 (0.20)
BP	2.76 (0.27)	3.14 (0.23)	3.12 (0.20)	3.41 (0.17)	3.04 (0.25)	3.25 (0.21)
SA	2.93 (0.28)	2.96 (0.31)	2.98 (0.21)	3.14 (0.23)	2.96 (0.28)	3.04 (0.31)

Notes: $n = 28$. Trans, transparency; moral, moral/ethical; BP, balanced processing; SA, self-awareness

Table III.
Descriptive statistics
for authentic
leadership 360
assessments

relaxation practices such as yoga and stretching and how they had learned to fit brief practice sessions into their work days. Doing so, not only helped them to sustain at least a modest practice but it helped moderate their response to situational anxiety at work and to smooth the transition from work to home:

[...] I do try to do mindful walking as much as I can. I did reset my computer password to the word mindfulness, so every day I have to put that in and stop and think about it [...] Sometimes too, if I'm getting really stressed or something, I try to be mindful and go walk away and just empty my brain or something (Participant 6).

Impact at work. Participants commented that they felt they had improved their work efficiency and effectiveness through improved concentration, enhanced abilities to prioritize, focus and organize their work, and to feel more in control:

[...] now that I'm more aware and mindful of my emotions, my reactions and my responses, it's provided me with some better skills of responding to teams, of not possibly jumping to conclusions, by helping me step back and thinking about things a little better before I respond (Participant 5).

Others commented on their awareness of 'mindful' changes in how they approach work demands:

[...] I make a conscious effort to be present with the people that I am with and not give a sense of being rushed. To be in the moment and I tend to be fairly aware of when I'm stopping to be in the moment, when I start to pay attention to something other than the person or the task and when I am focused on the next thing I need to get to. I intentionally either bring myself back to what I was doing then, or I intentionally switch (Participant 7).

Leadership effectiveness. In terms of leadership effectiveness, participants noted in particular how MAP had enhanced their openness and empathy for others and their ability to engage in the moment:

[...] it has really made me stop and think about a lot of things. About how brutal I was being with myself and other people around me. I was expecting too much of other people around me [...] I take the time to talk to people, if they come to my office with something, I don't make them feel rushed. I ask them to have a seat. Honestly, before, I used to think I didn't have time to talk to anybody so I wouldn't offer them a chair. I kept things on my chair. I used to put books on it so people wouldn't sit down because I would think I didn't have the time. And now, I don't think people come any more than they used to, but now when they come I think they feel more comfortable with me (Participant 4).

I didn't even realize I was doing it, but I always have so many things to do that when people were talking to me sometimes I would be doing other things while listening to them and with mindfulness and being more aware of that so when they are talking to me, I can just stop and focus on them and the other things I can just get to later. And if something pops into my head while I'm talking to them, I can realize it's there and just let it go (Participant 6).

Self-care. Enhancing compassion towards themselves and improving work-life balance were two additional benefits that participants experienced through developing MAP:

I am taking care of myself better. I check in and I'm kinder to myself [...] I give myself permission to unwind and sitting here in the office, I would never have done that before (Participant 2).

[...] it has allowed me to have time for me. It has given me permission to have compassion about the situation I may be in [...] Even at home I was doing for everybody else but not for me. So it's allowed for me to say it is ok to let things go. Being able to say it's ok, I don't need a lot of compassion but I need some (Participant 8).

Sustaining practice. Despite the numerous benefits that participants expressed as a result of the retreat and adopting MAP, sustaining practice has been challenging. Of the eight who agreed to be interviewed only one had continued regular practice over the intervening 16 weeks. This individual had an established practice prior to the retreat. Another described practicing “some form of meditation” while yet another managed to sustain a regular practice for six weeks until vacation interrupted her daily routines. Others described their efforts as “once in a while”, “a little bit”, “a two minute morning check in”, “tapered off”, and “no regular practice”. One might surmise that the three retreat participants who chose not to be interviewed may have experienced similar challenges to sustaining practice.

In light of the very positive benefits experienced through MAP, how did participants rationalize their practice attrition?:

[...] the greatest challenge has always been finding time for longer practice in each day, where all I am doing is practicing mindfulness. I work a long day, I have kids at home, the nature of our life is we have significant commitments and I drive 1 hr and 15 minutes each day for work (Participant 7).

Oh! Time, we don't have enough of it (Participant 2).

As far as meditation time, I don't really practice it on a regular basis because I actually make time for everything else and I should actually be penciling that time in for myself, which I haven't done. So it's when I have time I do it. But I guess it's like an exercise program. You feel good when you do it and then you fall into some bad habits and you have to go and draw yourself back into it (Participant 4).

Prioritizing practice. Being mindful of the value of a regular practice would appear to be insufficient to habitualize a practice and, despite having experienced the benefits of MAP, prioritizing mindfulness amidst established routines and demands was clearly a challenge:

In all honesty, I'm aware that I need to practice mindfulness but I find that I don't practice it faithfully. When I finished the program, every day I was doing mindfulness techniques in one sort or another, but in honesty, for the last two weeks I think of it [...] like I'm mindful [...] but I'm not actually sitting down and doing a 15 minute mindfulness session (Participant 5).

I am finding work has revved up and I'm really busy again, and in our personal life, and I'm not getting home until nine o'clock at night and I have just too many things to do. It's a time factor, really it is [...] So for me, I don't know if you can give me much more than what I've got unless I decide to take it a step further and join some group [...] So some external driving force [...] I'm an internal driver for other people, but not for myself. I recognize that (Participant 8).

Some participants alluded to an organizational culture that may inhibit individual efforts to prioritize MAP:

[...] it's the whole awareness and being mindful that is not in our culture. I have never been exposed to anything like this prior to all of the education sessions I've taken (Participant 8).

I think it's great that you guys are doing the study and having it in the workplace is a great thing. Whether or not the employers were supportive of all of it is a different story, in terms of each individual, department, and directors and all of that [...] and understanding what that is. That's definitely an issue (Participant 1).

Discussion

Effective leadership is a critical factor in the management of organizations during times of radical change (Avolio and Gardner, 2005). Middle managers in health care

organizations are especially challenged to balance functional management roles with strategic change leadership (McKinley and Scherer, 2000) while sustaining personal health and well-being and positively contributing to the creation of healthy workplace environments (Lowe, 2010). Research has suggested that mindfulness can positively impact leadership effectiveness through reduced anxiety (Hoffman *et al.*, 2010), higher order learning (Espedal, 2009), judgement accuracy (Kikken and Shook, 2011), problem solving (Ostafin and Kassman, 2012), managing uncertainty (Langer, 1989; Dane, 2011), and better performance of followers (Reb *et al.*, 2012).

The purpose of this study was to examine the impact of an intensive mindfulness intervention on leadership effectiveness. Specifically, we proposed a model whereby mindfulness may influence leadership effectiveness by causing positive affective states (e.g. decreased stress), which would then exert direct effects on behavioural patterns related to leadership effectiveness. The evidence presented here supports the tenability that mindfulness is an effective strategy for leadership enhancement and three specific findings are noteworthy.

First, even with a small sample, we showed significant increases in mindfulness as well as significant decreases in perceived stress following an intensive intervention that was sustained across eight weeks post-intervention. Critical is the finding that corresponding changes in leadership were also uncovered. Specifically, participants perceived themselves to be significantly more effective in their leadership role following the intervention. Significant increases in the extent to which participants solicited opinions and viewpoints of others prior to making important decisions (balanced processing) were also found across time following the intervention. Although no significant changes were found for other aspects of authentic leadership, it is worth noting that the means for the subscales of self-awareness and transparency also increased across time.

Second, even with a non-matched control group, we showed that the changes in mindfulness and in perceived stress among retreat participants were not experienced by participants in the control group. This finding supports the utility of the mindfulness intervention. Whereas the pattern of means for indices of leadership support our hypothesis that retreat participants would experience corresponding changes in leadership and control participants would not, our data failed to uncover significant effects. However, preliminary analyses using bootstrapping provided support for the viability of our proposed mediational model. Although the total effect was not significant, the confidence intervals suggest that increased mindfulness predicted decreased perceived stress which, in turn, predicted greater leadership effectiveness.

Third, and importantly, we also showed that changes in leadership were corroborated by others. Specifically, 360 reports by supervisors, peers, and subordinates demonstrated that others perceived changes in participants' leadership. Changes were apparent in the extent to which participants reinforced a level of openness with others (transparency) and the degree to which participants solicited opinions and viewpoints of others prior to decision making (balanced processing). As noted earlier, these scales appear to be the most conceptually relevant for mindfulness. Qualitative data further enrich the study findings by offering insights into the lived experiences of the study participants as they worked to integrate MAP into their daily lives.

Our data provide preliminary support for the effectiveness of MAP in improving leadership in a health care setting. This novel finding adds to the current literature on mindfulness because it expands on the known outcomes associated with an

intervention aimed at increasing momentary awareness. Moreover, this finding contributes to the literature on leadership because it demonstrates that changes in leadership can be effected through individual MAP.

The research reported here has three primary limitations. First, the small non-random sample of retreat participants was by far the greatest limitation of the current study. Despite repeated recruitment attempts, the motivation and commitment required for participation appeared to be the primary drawback for potential participants. Thus, although the time required for our intervention was less than traditional interventions, it still necessitated that participants commit over and above work and home demands. However, we demonstrated that mindfulness significantly impacted participants' own perceptions as well as the perceptions of others. In the future, researchers may also want to explore the effectiveness of mindfulness for both women and men.

The sample may also have contributed to the lower than ideal reliabilities we uncovered for one of the scales used (i.e. ALQ). A second limitation concerned the composition of our control group. Specifically, future studies may want to ensure that comparison groups are matched on important demographic variables such as gender, age, and employment role. Ideally, having waitlisted participants serve as a control group would afford a stronger comparison. A second control group comprising an attention placebo condition may also be beneficial for inferring causation.

Finally, although the inclusion of informant reports added strength to the current study, we failed to show differences across supervisors, peers, and subordinates. One might expect that perceptions vary according to who is reporting, and it might be particularly indicative if subordinates perceive positive changes because that may be the impetus for improved productivity. Overall, although the results of this study are not generalizable beyond similar populations from which our sample was drawn, our findings provide a basis for future research.

Implications for practice

Sauer and Kohls (2011) contend that theoretical and empirical grounds merit consideration of the beneficial effects of mindfulness on leadership effectiveness in three specific areas: information processing, interpersonal interaction, and decision making. Our pilot study shows that, despite the potential benefits of mindfulness, there are challenges to its integration into managerial practice in a health care setting. If managers experience much needed beneficial effects from MAP the question remains why do they struggle to sustain even a modest daily practice? The time to do so is cited as the obvious hindrance but, paradoxically, a Zen proverb that captures the underlying philosophy of mindfulness says, "You should sit in meditation for twenty minutes every day – unless you're too busy. Then you should sit for an hour". In other words, the more time pressured one is, the more important it is to take the time for practice.

While time is important, "space" for practice is equally important. Here we refer to social structural space as afforded in an organizational climate and culture that values the health and well-being of its employees. Work is a fundamental aspect of human endeavour that should support and contribute to individual well-being. It would appear, however, that the chaotic environment within many health services organizations undermines the practical achievement of such benefits with many organizations inadequately considering the caring connection between leaders and employees and instituting policies and procedures that frequently limit the ability of leaders and managers to act with care (Kroth and Keeler, 2009).

While leadership development is an espoused priority in many health care organizations, research suggests the ineffectiveness of leadership development initiatives that are poorly implemented and that do not provide sufficient time for personal change (Pinnington, 2011). Ingrained authority ranking structures and the ethos of caring that characterizes health professions, especially nursing (the professional background of many middle managers), appear to support a general belief that raising issues related to their own health and well-being is inappropriate in times of severely constrained resources and increasing demands. As our participants suggested, prioritizing work and putting others first by self-sacrificing is deemed to be the “appropriate” response. But, the associated costs of increased stress and decreased physical, emotional, and psychological health highlight the importance of self-care as fostered by MAP.

In sum, the data presented here provide preliminary support for the effectiveness of MAP as a means to reducing perceived stress and positively impacting leadership efficacy. Although we cannot definitively conclude that MAP causes changes in leadership effectiveness, the results of this pilot study provide avenues for future research and highlight the importance of such research.

Note

1. Search conducted 6 April 2014.

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Appendix. Questions for semi-structured interviews with initial study participants

1. Please tell me about your experience of mindfulness awareness practice.
- (2.a) Have you been able to continue your practice following the spring retreat and webinar?
- (2.b) If so, please describe your practice – how often you practice, what you include in your practice, etc.
- (2.c) If you have not continued practice, can you tell me what has prevented you from doing so.
- (3.a) How has your practice of mindfulness awareness affected your approach to leadership? Has it changed your style of leadership?
- (3.b) Has it affected other aspects of your work? Please elaborate.
- (3. c) Has it affected other aspects of your life? Please elaborate.
4. What has been the most rewarding outcome of developing a mindfulness awareness practice?
5. What presents the most challenge to sustaining a regular practice?

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