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Multilevel Mindfulness

Which Organizational Factors Stimulate Mindfulness in the Workplace?

Linda Koopmans, PhD, Danielle Bruel, MSc, Ellemarijn de Geit, MSc, Roos van den Bergh, MSc, Luuk Bouwens, MSc, Elsbeth de Korte, PhD, Noortje Wiezer, PhD, and Wouter van der Torre, MSc

Objective: This study aimed to examine which factors in the organizational context stimulate and/or hinder employee mindfulness. **Methods:** Two methods were used: 1) scientific literature review, and 2) qualitative interviews with scientists, trainers, and managers. **Results:** The individual and the work environment interact with each other when it comes to mindfulness in the workplace. Factors at the task, team, supervisor, organizational, and context level stimulate employee mindfulness. **Conclusions:** Mindfulness is effective in dealing with stress but also positively impacts work-related outcomes such as engagement, concentration, and productivity. A multilevel approach can strengthen the positive effects of individual mindfulness training in the workplace, ultimately contributing to healthy workplaces.

Keywords: mindfulness, multilevel mindfulness, team mindfulness, mindful leadership, collective mindfulness

Work is changing because of technological advances, globalization, and societal challenges such as climate change and the energy transition.^{1–5} Many factors like these cause work to become increasingly complex and intensive for workers.⁶ Technological advances cause work to change rapidly and require workers to continuously keep up their knowledge and skills.^{2,7} Hybrid working has become more standard because of the COVID pandemic and digital technologies, and developments such as social media cause a continuous flow of incentives and information. This has advantages but can also cause blurred lines between work and private life.³ In addition, worldwide challenges such as climate change cause a need for new skills and new jobs,⁵ as well as a broader attitude and behavior change, for example, in our consumption behavior.⁸

Research into mindfulness, particularly as a way of dealing with stress, has boomed over the last 20 years.⁹ Both psychological and neuroscientific research show that mindfulness-based interventions are effective in reducing stress and enhancing mental well-being of individuals.^{10–13} More recently, there is increasing evidence for the effectiveness of mindfulness-based interventions on work-related outcomes

LEARNING OUTCOMES

- The beneficial effects of employee mindfulness can be further strengthened looking at the organizational context.
- Factors at the task, team, supervisor, organizational and context level can stimulate (or hinder) employee mindfulness.

such as engagement, resilience, collaboration, occupational safety, and productivity.^{11,14–16} The increasing popularity of mindfulness at work can also be seen in the increasing number of companies that offer in-house mindfulness training for their employees, including companies such as Google, Ford, US Marines, and Intel.^{17–19}

Mindfulness can be defined as: “purposefully paying attention to the present moment and being aware of mental states and processes with a sense of openheartedness, curiosity and kindness, and without judgment.”²⁰ This definition, like other definitions,²¹ emphasizes attentional regulation, focusing your attention on the present moment, on what you are doing during that time. In addition, the definition emphasizes a reflective attitude toward one’s state of mind (emotions) and mental processes (interpretations, thought patterns). Finally, mindfulness is aimed at cultivating a friendly (positive) and curious attitude toward yourself and your surroundings and at refraining from (quick) judgments (being open minded).

Mindfulness can be viewed as a trait or as a more temporary state.²² Mindfulness as a temporary state is the degree to which a person is “mindful” at a specific moment. Through mindfulness exercises, such as breathing meditations or yoga, one can bring oneself into a ‘state of being mindful’ and one can also train the skills to evoke such a state in daily life. Mindfulness as a trait has to do with how often someone is in a temporary state of mindfulness, also called dispositional mindfulness.¹² In this article, we focus on mindfulness as a temporary state that can be cultivated through practice and interventions.

Individual behavior—like being mindful—is not only dependent upon a person’s own skills but also on the environment a person is in. The interaction between person and environment is well-established in the scientific psychological literature.^{23–25} Not only does the person impact their environment, but the environment also impacts the person. In a work setting, the work environment can stimulate or hinder mindfulness of an employee. For example, a busy work environment such as an open office space can provide distraction. Pop-ups of e-mails on the screen or notifications of WhatsApp messages can prevent people from paying full attention to a certain task. Therefore, it is necessary to look beyond individual mindfulness and include the organizational context in all its complexity if we want to stimulate mindfulness in organizations.

A multilevel approach, in which the organization is structured and managed in such a way that mindfulness can be cultivated and thrive, both at an individual and a collective level, is useful. The importance of such a multilevel approach to mindfulness has been recognized by science, but at the same time, such an approach has not yet been developed.^{17,22,26} Little research has been done on the impact of job and organizational factors on mindfulness.^{17,22} Thus, there is currently no insight into which factors in the organizational context

From the TNO, Unit Healthy Living and Work, Leiden, the Netherlands (L.K., D.B., E.d.G., R.v.d.B., L.B., E.d.K., N.W., W.v.d.T.); and Amsterdam University Medical Center, Amsterdam, the Netherlands (L.B.).

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Address correspondence to: Wouter van der Torre, MSc, TNO, Unit Healthy Living and Work, Sylviusweg 71, 2333 BE, Leiden, The Netherlands (wouter.vandertorre@tno.nl).

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TABLE 1. Search Strategy for the Scientific Literature Review

Database	Search Strategy
Scopus	TITLE-ABS-KEY(“mindful business operations” OR “mindful organizations” OR “mindful organizing” OR “multilevel mindfulness” OR “multi-layer mindfulness” OR “multi level mindfulness” OR “mindful management” OR “organizational mindfulness” OR “mindful infrastructure” OR “workplace mindfulness” OR “collective mindfulness” OR “team mindfulness” OR “mindful leadership”)

stimulate and/or hinder mindfulness. A multilevel approach to mindfulness can strengthen mindfulness in the workplace and its beneficiary effects on, for example, employee stress and well-being, resilience, collaboration, concentration, and productivity.

The research question of the current paper is: Which factors in the organizational context stimulate and/or hinder mindfulness of the employee?

The goal is to map context variables that impact mindfulness of employees—and integrate the findings into a theoretical multilevel mindfulness model, distinguishing between different levels in the organization (such as team, task, supervisor, and organization).

METHODS

Two methods were used to identify stimulating and impeding factors for mindfulness in the workplace, namely, 1) a scientific literature review and 2) qualitative interviews with scientific experts in the field of mindfulness, trainers, and managers concerning themselves with mindfulness in organizations.

Scientific Literature Review

A systematic literature search was conducted in the Scopus database in March 2023. Using the search strategy in Table 1, scientific articles on the relationship between individual mindfulness and organizational-level factors were identified. Inclusion criteria were: 1) the study describes a link between individual mindfulness and organizational-level factors and 2) the study is written in English. No restrictions were placed on year of publication

or publication type. The titles and abstracts that were identified were independently screened by two researchers. Differences in judgment were resolved through a consensus procedure. Subsequently, the eligible and doubtful titles and abstracts were retrieved full-text and three researchers judged the suitability of the full-text articles. Finally, additional studies were identified by scanning the reference list of included full-text articles, Google Scholar, and input from authors and the interviewed experts. The suitable full-text articles were analyzed in an Microsoft Excel (version 2308, 2023; Microsoft Corporation, Redmond, WA), framework and discussed by all researchers in a meeting, to get a sense of the findings.

Interviews With Scientific Experts, Trainers, and Managers

A total of 23 national and international experts in the field of mindfulness were interviewed. Table 2 presents characteristics of the interviewed experts. The experts included 12 researchers, 5 mindfulness-based stress reduction (MBSR) trainers, 3 managers, and 3 human resource professionals. The experts were approached through the professional network of the authors. Most interviews (11) were conducted individually. There were two double interviews and one group interview (with 3 people). Two researchers were present at each interview. Both online and offline interviews were held. An interview protocol was developed, which included questions on the experts' experiences on integrating mindfulness (practices) into daily working life and on stimulating and hindering factors of mindfulness in the organizational context. Interviews were transcribed nonverbatim and were held until data saturation. The findings from the interviews were summarized in an Excel framework similar to that of the scientific articles, in which the stimulating and hindering factors mentioned by the experts were classified at relevant levels in the organization (such as team, task, supervisor, and organization).

Integration of Results

The findings from the literature and interviews were integrated into a theoretical multilevel mindfulness model, distinguishing between different levels in the organization (such as team, task, supervisor, organization). Stimulating and hindering factors were classified at the relevant organizational level. After interpreting the findings from

TABLE 2. Characteristics of the Interviewed Experts

Respondent	Job Title	Nationality	Gender	Practices Mindfulness Regularly
1	Mindfulness Trainer	New-Zealand	Male	Yes
2	Researcher and Mindfulness Trainer	Netherlands	Female	Yes
3	HR Professional and Mindfulness Trainer	Netherlands	Female	Yes
4	HR Professional	Netherlands	Male	Yes
5	Researcher	Canada	Male	Yes
6	Researcher and Program Manager	Netherlands	Male	Yes
7	Mindfulness Trainer and Program Manager	Netherlands	Female	Yes
8	Trainer and Author	Netherlands	Male	No
9	Director and Founder, Mindfulness Trainer	Netherlands	Male	Yes
10	Top manager	Netherlands	Female	Yes
11	Researcher	Netherlands	Male	No
12	Researcher, Professor	Netherlands	Male	No
13	Manager	Netherlands	Female	Yes
14	Director	Netherlands	Female	Yes
15	Director and Founder, Mindfulness Trainer	Netherlands	Male	Yes
16	Researcher and Manager	German	Female	Yes
17	Researcher and Program Manager	Netherlands	Female	Yes
18	HR Professional	Netherlands	Female	No
19	Researcher, Professor	Netherlands	Female	Yes
20	Researcher	United Kingdom	Female	Yes
21	Researcher	Netherlands	Male	No
22	Researcher	Netherlands	Male	No
23	Researcher, Professor	United Kingdom	Male	Yes

the literature, the findings from the interviews were discussed and added to the relevant level in the multilevel model. The findings from the scientific literature review were used as a basis. The authors used the interview results to identify any additional factors mentioned in the interviews. This took several meetings at which all authors were present. During these meetings, the results from the included full-texts and the interviews were discussed and interpreted by at least three researchers.

RESULTS

Results of the Scientific Literature Review

The scientific literature search resulted in 349 titles and abstracts. Of these, 64 were found eligible or doubtful for full-text screening. The following characteristics from each included study were extracted: (1) author(s), (2) publication year, (3) country the study was conducted in or in case of literature study nationality of the author, (4) study design with description if available, (5) participants if applicable, (6) study focus and outcome variables, and (7) findings related to the outcomes of interest, mindfulness, or work factor. Based on the full-text, 50 articles were excluded as they did not describe a clear link between individual mindfulness and organizational-level factors (many studies were excluded because they investigated the influence of mindfulness on organizational

factors, whereas the current focus is on organizational factors influencing mindfulness) and/or due to a lack of references. After review, 14 studies were included. Five additional full-text articles were included from scanning the reference list of included full-text articles, Google Scholar, and through interviewed experts. In total, 19 studies were included in the review. See Figure 1 for a flowchart of the study selection process. Table 3 shows the characteristics and findings of the included studies. In addition, the included literature review articles are highlighted with an * in the reference list.

General Overview of the Results

The results—based on an integration of the scientific literature review and the expert interviews—generally indicate that individual mindfulness can be stimulated both through training the individual and through the environment. Thus, there appears to be consensus that both the individual and the work environment interact with each other when it comes to mindfulness in the workplace. In the scientific literature, a few authors highlight the importance of a multilevel approach.^{26,27} The interviewed experts generally agreed that an individual’s mindfulness skills are most important for displaying mindfulness, but the context has a stimulating or hindering influence. Thus, it is crucial to train individuals in their mindfulness skills for a longer period. The experts also believed

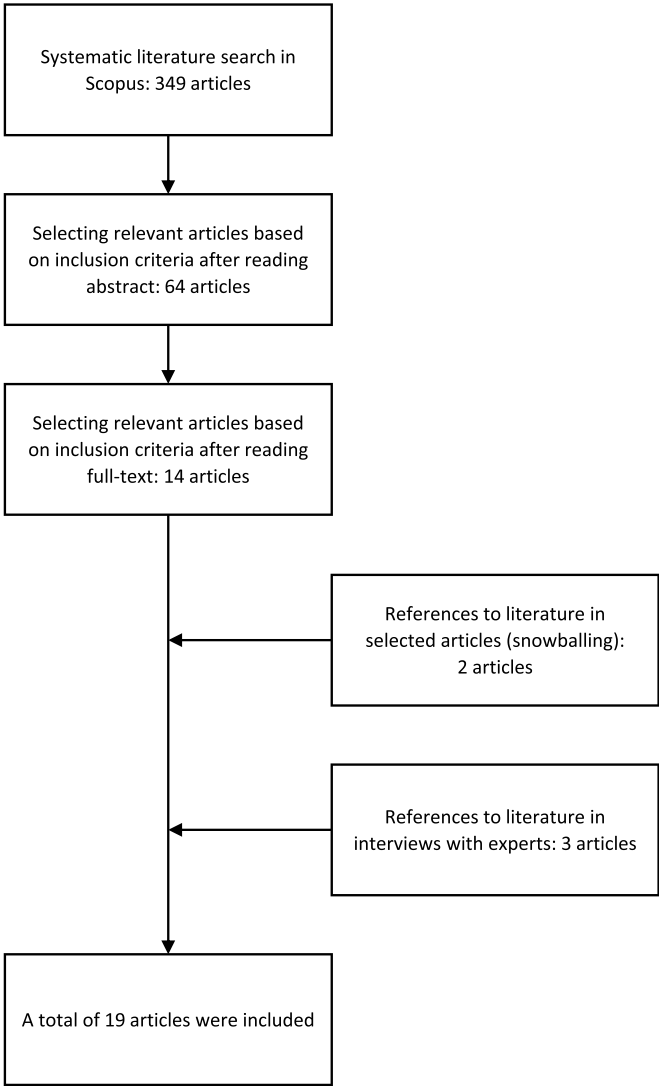


FIGURE 1. Flowchart of study selection process.

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TABLE 3. Characteristics and Main Findings of the Included Studies

Authors	Publication Year	Country	Study Design	Participants	Study Focus	Main Results/Mindfulness or Work Factors
Beverage S., DeLong K., Herold I.M.H., Neufeld K.	2014	USA/CAN	Literature review and case study	Librarians	Key definitions, theories, and applications of mindful leadership	Mindful leadership: Leaders who are acting mindfully demonstrate ethical behaviors that counter self-deception and unconscious biases. Mindful leadership can make a significant difference to both employees and organizations. Tasks: The relationship between mindfulness and task performance is positive when one operates in a dynamic task environment and has a high level of task expertise.
Dane, E.	2011	USA	Literature review	Not applicable	Mindfulness definition, comparison to a range of other attention-related concepts, and development of a theory concerning the factors that determine when mindfulness is beneficial versus costly from a task performance standpoint.	
Ehrlich, J.	2017	USA	Literature review	Not applicable	A review of current thinking and research on mindfulness, specifically its application to leaders and organizations. It offers a framework for practitioners and consultants to assist their clients in becoming more mindful leaders.	Mindful leadership: Mindful leaders are more secure in themselves, and this seems to help their employees experience less stress and emotional exhaustion. Mindful leaders appear to have greater hope, optimism and resiliency. Employees of mindful leaders in turn demonstrate higher job performance, job satisfaction, and organizational citizenship behaviors, as well as higher engagement and well-being.
Farley S., Wu D.W., Song L., J., Pieniazek R., & Unsworth K.	2022	UK/CHN	Empirical research: temporally lagged survey study	440 employees of a Chinese hospital; female (73.2%), male (10.2%), and (16.6%) did not state their gender; Most participants worked as nurses ($n = 411$, 78.1%), and the others worked as administrators ($n = 79$, 14.3%) or pharmacists ($n = 40$, 7.6%).	The study examined the role of team mindfulness and its direct and buffering effects on individual-level promotion- (acceptance, positive reframing) and prevention-focused (denial, venting, behavioral disengagement) emotional coping to incivility and their effect on work engagement.	Team mindfulness: Team mindfulness influences individual emotion regulation and coping responses. More specific, team mindfulness was negatively associated with individual-level prevention-focused emotional coping; however, not positively related to individual-level promotion-focused forms of coping. In addition, a cross-level interaction effect was identified whereby team mindfulness reduced the positive relationship between incivility and venting, meaning there was less individual-level venting following incivility in the context of higher team mindfulness.
King E. & Badham R.	2018	AUS	Literature review	Not applicable	Wheel of mindfulness model that captures the different, and inevitably selective, lenses on mindfulness, and provides a generative framework for exploring and building on sources of controversy and debate.	Mindful leadership: Second-generation mindfulness interventions in leadership are defined as going beyond views of mindfulness as a means to reduce the stress inherent in continual change, and as instrumental support for organizational performance in an economy of attention.
Krishnan, H.A.	2021	USA	Literature review	Not applicable	The paper explores how mindfulness can be successfully integrated in the strategy of organizations as a means to create a sustainable competitive advantage, with practical tools.	Company level: Practical workplace strategies for increasing mindfulness in the workplace, such as scheduling and participating in mindful meetings, mindful eating during lunch breaks, and mindful communication in speech and writing.

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TABLE 3. (Continued)

Authors	Publication Year	Country	Study Design	Participants	Study Focus	Main Results/Mindfulness or Work Factors
Lawrie, E. J., Tuckey, M. R., & Dollard, M. F.	2018	AUS	Empirical research: Multilevel design with five daily diary entries.	57 employees, primarily working in education, health care, and finance, completed a diary for 5 days within a 2-week period.	Level of mindfulness, psychological demands, job control, learning, psychosocial safety climate.	Tasks: To support everyday mindfulness at work, jobs must be designed with manageable demands and a variety of tasks that allow for creativity and skill discretion, and (b) the benefits of mindfulness interventions for employee psychological health and well-being may not be sustainable unless employees have influence over when and how they do their work, in the “right” climate.
Passmore, J.	2019	UK	Literature review	Not applicable	This paper explores the application of mindfulness in organizational development to provide a useful guide for practitioners in their work as managers, consultants, and coaches.	Mindful leadership: The paper provides insights drawn from practice that can be applied by HR practitioners or consultants addressing modern organizational challenges from workplace stress to developing leaders with greater situational awareness and empathy.
Reh, J., Narayanan, J., & Chaturvedi, S.	2014	SGP	Empirical research: Survey study on two data points	Study 1: T1 = 96 participants (matching employees and supervisors); T2 = 74 participants. Various industries (eg, service 27%, financial 19%). Age (M) = 39; Study 2: T1 = 73 participants (matching employees and supervisors); T2 = 61 participants. Various industries (eg, service 19%, manufacturing 18%). Age (M) = 41.	Influence of leaders’ mindfulness on employee well-being and performance.	Mindful leadership has positive effects on employee performance and job satisfaction; a leader who is individually mindful, is expected to develop better relationships with their employees through better emotion regulation.
Reh, J., Narayanan, J., & Ho, Z. W.	2015	SGP	Empirical research: Field survey approach (three waves every 2 weeks).	Sample 1: 124 participants, 58% female, various industries (eg, service 24%, manufacturing 14%), age (M) = 36; Sample 2: 107 participants, 56% female, various industries (eg, service 22%, financial 19%), age (M) = 36.	The relation between employee awareness and employee absent-mindedness with employee well-being and job performance, and the role that organizational factors, organizational constraints and organizational support may play in facilitating or hindering mindfulness at the workplace.	Routine work is associated with more absent-mindedness (being on ‘auto-pilot’); the supervisor is an important stimulating (or hindering) factor for mindfulness in employees; lack of organizational resources hinders employee mindfulness.
Ritchie-Dunham, J.L.	2014	USA	Book chapter	Four case studies in an electric company, a school board, a textile company, and a statewide project.	How leaders can embrace uncertainty to support employees: openness to new perspectives, new categories, and new information.	Mindful or compassionate leadership creates conditions for innovation, efficiency, and effectiveness in the organization.
Rupperecht, S., Koole, W., Chaskalson, M., Tamdjidi, C., & West, M.	2019a	NL/UK	Literature review	Not applicable	A better understanding of mindfulness in the context of organizations: Mindfulness in organizations is not only an individual property but also a property of teams and the organization itself.	Multi-level approach, mindful leadership, team mindfulness: mindfulness training would be (more) beneficial for organizations when tailored to that context and shaped by an understanding of organizational theory and practice. Team mindfulness can enhance individual mindfulness and team effectiveness.

Ruppelrecht, S., Falke, P., Kohls, N., Tamdjidi, C., Wittmann, M., Kersenaekers, W.	2019b	NL/DE	Qualitative research: semi-structured interviews	Interviews with 13 leaders, 11 male. Age (M) = 48, within 6–12 months of WorkingMind training	How mindfulness training may affect leader capabilities.	Mindful leadership: WorkingMind training helped leaders to improve three self-leadership capacities: mindful task management, self-care and self-reflection and two leadership capacities: relating to others and adapting to change. A mindful leader is expected to develop better relationships with their employees through better emotion regulation.
Shahbaz, W. & Parker, J.	2022	NZ	Literature review	Not applicable	Antecedents, mediators, and moderators to workplace mindfulness: well-being, relationships, and performance.	Multilevel mindfulness: A framework of individual and workplace factors such as workload, task demands, job control, supervisor support and organizational climate is presented.
Tobias Mortlock, J., Carter, A., & Quersret, D.	2022	UK	Empirical research: multiphase mixed-methods pilot study	A high-stress work population: military officers in training 1) a pre-pilot intervention of the TMT program with a small sample of junior military personnel ($n = 23$) from a British Army military training division, evaluated qualitatively ($n = 21$) 2) a mixed method controlled pilot intervention with a second set of junior military personnel from four Royal Navy military training divisions.	The study focus is to explore a shift in the conceptualization of mindfulness training from serving as a self-help tool to acting as a social catalyst for transformation. It aims to illuminate the increasing prominence of mindfulness interventions in workplaces and bridge the gap between individually focused mindfulness meditation literature and collective mindfulness literature. Specifically, the research investigates how mindfulness interventions can enhance social and situational awareness in teams and organizations, enabling them to manage unexpected stressors effectively.	Team mindfulness training seems as effective as traditional mindfulness-based interventions in raising individual stress management skills, and may hold more promise in generating collective capacity to manage stress and unexpected difficulty, organizational culture and values.
West, M., Eckert, R., Collins, B., & Chowla, R.	2017	UK	Literature review	Not applicable	How compassionate leadership can stimulate innovation in health care.	Mindful or compassionate leadership creates conditions for altruism and intrinsic motivation, for risk taking, for speaking about errors, concerns and problems, for developing improved ways of doing things, for dealing with uncertainty, and for creating a climate of optimism, efficacy and cohesion in teams.
West, M.	2021	UK	Book	Not applicable	Compassionate leadership: sustaining wisdom, humanity and presence in health.	Mindful leadership: Four central components of 'compassionate leadership', namely, 'attending' (being present), 'understanding' (through dialog with employees), 'empathizing' (taking the perspective of the employees) and 'helping' (supporting employees in their work).
Wongkom S., Sanrattana W., Chusorn P.	2019	TH	Empirical research: descriptive research study	Questionnaire on mindful leadership ($n = 610$)	1) Test the fitness between the theoretical model of the mindful leadership indicators and empirical data and 2) Investigate factor loading value of the main elements, sub-elements, and indicators with models.	Mindful leadership: A theoretical model containing four key elements of mindful leadership, namely, commitment, compassion, good decision making and self-awareness.
Yu, L., Zellmer-Bruhn, M.	2018	USA	Literature review and field study (three multiwave)	18 participants, age (M) = 28 years, 27% women	Team mindfulness is examined as a safeguard against multilevel team conflict transformation processes. Variables: task conflict, relationship conflict, team mindfulness, social undermining.	Team mindfulness: Psychological safety is an important part, team mindfulness safeguards conflict transformation and social undermining.

AUS, Australia; CAN, Canada; CHN, China; DE, Germany; NL, Netherlands; NZ, New Zealand; SGP, Singapore; TH, Thailand; UK, United Kingdom; USA, United States of America.

that it is possible to shape the organizational context in a way that stimulates mindfulness. A stimulating context can be especially helpful when an individual has not yet fully developed his or her mindfulness skills.

Factors at the Task Level

At the task level, several factors emerge from the scientific literature and the expert interviews as stimulating or hindering for employee mindfulness. These entail task demands and task autonomy (and the balance between these two), task variety, task complexity, and whether tasks match personal interests.

Task Demands and Task Autonomy (and Their Balance)

Three articles show that psychological task demands and workload are factors that appear to negatively influence mindfulness.^{27–29} If employees experience a lot of work pressure, they are more inclined to work in a hurry and less inclined to build in moments of rest and reflection (like a ‘check-in’). There appears to be a reciprocal relationship. Both scientific literature and expert interviews show that mindfulness can help deal effectively with work pressure, for example, by not thinking about all the things that still need to be done, but by starting and completing one task with full focus.

Task autonomy appears to be an important stimulating factor for mindfulness.²⁷ The interviewed experts indicate that when employees can determine the order of their work themselves, they can choose tasks that suit their mental and physical state. It is also important that employees can create moments of rest for themselves. Short breaks can create moments of mindfulness. During these breaks, employees can do a short breathing exercise or take a moment to reflect on their day.

In addition, Lawrie and colleagues found that the balance between task demands (workload, task complexity) and task control (autonomy and possibilities to ask for help) stimulates mindfulness.²⁸ This is in line with research on the balance of job requirements and control options, which leads to ‘active jobs’ that stimulate learning and innovative behavior.^{30–33} An imbalance between job requirements and control options can lead to stress, or boring and unchallenging work.

Task Variety and Complexity

Task variety and complexity (to a certain degree) seems to have a stimulating influence on mindfulness. For example, Dane shows that the relationship between mindfulness and task performance is positive when one operates in a dynamic task environment and has a high level of task expertise.³⁴ This relationship is negative when one operates in a static task environment and is a task novice. Reb and colleagues found that routine work is associated with more absent-mindedness (being on ‘auto-pilot’).³⁵ On the other hand, they found no relationship between routine work and awareness (awareness of the internal and external world in the present moment). Furthermore, Shahbaz and Parker found in their review that a lack of variation (or more routine work) has a negative relationship with mindfulness.²⁷

In the interviews, experts indicate that a certain degree of complexity that matches the working and thinking level of the employee is likely to stimulate mindfulness. In addition, alternation between demanding/nonroutine and less demanding/routine tasks, in combination with autonomy, can ensure that an employee can choose the right task at the right time. Then, the occasional simple or routine task can provide peace of mind. Experts also mention that varying ‘manual tasks’ and ‘cognitive tasks’ can be a stimulating factor for mindfulness. This can contribute to the awareness of different sensory inputs and can help keep attention on the task. Occasional exercise, such as getting something to drink (without thinking about work), can also have a positive effect. On the other hand, experts indicate that a lot of variation, for example, having many different projects or tasks at the same time, means that a lot of switching has to be done. Often having to shift your attention during the day (eg, from one project to another) requires a high degree of attention regulation, and combined with higher stimuli

input, this makes it more difficult to fully focus on what you are doing at that moment.

Finally, doing tasks that match someone’s personal interest and that give someone ‘energy’ is important to be mindful, is indicated in the expert interviews. If someone naturally likes to do certain tasks, it is easier to focus and stay focused on those tasks. In addition, a certain degree of complexity that matches the working and thinking level of the employee is likely to stimulate mindfulness.

Factors at the Team Level

Team mindfulness can be defined as a team’s shared belief that team members’ interactions are marked by attention and awareness of the present moment as well as nonjudgment in the space between individual team members, and this shared belief reduces conflict and anti-social team behavior such as interpersonal undermining of other team members.³⁶ In line with this, Rupperecht and colleagues define team mindfulness as collectively paying attention to the team experiences and their underlying objectives, tasks, roles and structures, in a periodically consistent and nonjudgmental way.²⁶ This can enhance individual mindfulness and team effectiveness. For example, Farley and colleagues show that team mindfulness influences individual emotion regulation and coping responses (eg, in response to incivility in the workplace).³⁷

Although mindfulness training in organizations is currently focused on teaching mindfulness to individuals (both employees and leaders), team mindfulness is gaining increasing attention and several interventions have been developed for stimulating team mindfulness. For example, the team mindfulness training developed by Tobias Mortlock and colleagues existed of a combination of individual MBSR exercises and collective mindfulness training elements, such as team sessions about shared norms and values.³⁸ Both the literature and interviews show that team psychological safety is an important part of team mindfulness and that this is a part of team mindfulness interventions.^{28,36} Psychological safety contributes to a bond of trust, a team feeling and good mutual relationships (connectedness), which can stimulate mindfulness. In addition, it contributes to openness and transparency, making it easier to discuss emotions or experienced stress. This also leads to more openness about norms and values regarding each other’s behavior. A psychologically safe environment can also be promoted, for example, by managers or other role models being open and vulnerable, explicitly asking for differing opinions, and appreciating and valuing different perspectives. In addition, having a clear structure for team meetings (eg, with a ‘check-in’) and agreements on how the team works together (eg, how e-mail is used) can foster mindfulness. Finally, interviewed experts believe that focusing on team goals (instead of only individual goals) and team performance (instead of individual performance) can foster mindfulness.

Factors at the Supervisor Level

In addition to team mindfulness, ‘mindful leadership’ is gaining attention.^{39,40} The term ‘compassionate leadership’ is also used.^{26,41} Mindful (or compassionate) leadership means a leadership practice that focuses on empathy, generosity, and empowerment to promote well-being, self-efficacy, and resilience even under high stress.⁴² In addition, mindful leadership also focuses on clarity, creativity, motivation, and compassion in serving and leading others. Various studies attempt to describe the elements of mindful leadership. Wongkom et al synthesized all these components and built a theoretical model containing four key elements of mindful leadership, namely, commitment, compassion, good decision making, and self-awareness.⁴³ Similarly, West et al name four central components of ‘compassionate leadership,’ namely, ‘attending’ (being present), ‘understanding’ (through dialog with employees), ‘empathizing’ (taking the perspective of the employees) and ‘helping’ (supporting employees in their work).^{29,41} Both conceptualizations require a committed and supportive attitude and not directive leadership. The interviewed experts also mention leadership as an important contextual factor for employee mindfulness. Simple practical things a

mindful leader can do is, for example, taking the time to pause and practice mindfulness themselves and not do back-to-back meetings.^{39,44} The interviewees also mention for example open and transparent communication, starting meetings with check-ins and giving everyone a voice during meetings.

There are various training courses that are specifically aimed at ‘mindful leadership.’^{26,40,41} Limited research appears to have been conducted into the effects of mindfulness training for managers (which are not yet as standardized as the individual MBSR trainings), but there is some evidence for positive effects on employee performance and job satisfaction.⁴⁵ Despite the limited amount of research in the effects of mindfulness training for managers on employees, there appears to be consensus that the supervisor is an important stimulating (or hindering) factor for mindfulness in employees.^{27,35} There is also evidence that mindful or compassionate leadership creates conditions for altruism and intrinsic motivation, for risk taking, for speaking about errors, concerns, and problems, for developing improved ways of doing things, for dealing with uncertainty, and for creating a climate of optimism, efficacy, and cohesion in teams.^{41,46} In addition, a leader who is mindful, defined as individually mindful, is expected to develop better relationships with their employees through better emotion regulation.^{45,47,48} Both regulating a leader’s own emotions and the social intelligence to effectively deal with emotions within a team are important.⁴⁷ In concrete terms, this could include noticing (collective) emotions within a team and addressing and discussing them if necessary. The interviewees indicate that in many organizations and teams, emotions remain implicit and are not expressed. This is an obstacle to good emotion regulation (a central part of mindfulness). Thus, there appears to be consensus that mindful leadership is an important stimulating factor for employee mindfulness.

Factors at the Organizational Level

In the scientific literature, at the organizational level, organizational climate/culture, organizational vision, values, resources (eg, organizational support, delegating of authority), and noise emerge as stimulating or hindering factors for employee mindfulness.^{27,28,35,41,49} In a recent review by Shahbaz and Parker organizational caring climate, organizational resources and noise in the physical work environment were named as important organizational factors for stimulating or hindering employee mindfulness.²⁷ In line with organizational climate, several articles name organizational vision, organizational culture and values, organizational support, and psychosocial safety climate as important for stimulating employee mindfulness, respectively.^{28,35,41,49} A lack of organizational resources hinders employee mindfulness.³⁵ Most of these studies also mentioned job autonomy (ie, delegating authority) and leadership behavior and practices as important for stimulating or

hindering employee mindfulness. In this article, these were discussed in the previous paragraphs.

The interviewees indicate that for example coherence between the organizational vision and own goals, a collective (instead of individualistic) organizational climate, and role models at the organizational level, stimulate employee mindfulness. The organization facilitating individual MBSR training and return meetings is also mentioned. Finally, the interviewees indicated that the physical work environment can play an important role in stimulating employee mindfulness. A tidy desk, an ergonomic chair, the setting of the desks in an open office space, and a serene, natural office environment can stimulate mindfulness. In addition, the availability of (individual) concentration workspaces, as well as recharge rooms or relaxation rooms, can stimulate mindfulness. The physical environment can also be used to give employees small nudges to be mindful, for example posters on the wall with mindful quotes or reminders. Finally, a natural, green environment outside the office building (to look at from the window or to take a walk outside) can stimulate mindfulness, as indicated by the interviewees.

Factors at the Context Level

Though not found in scientific literature, factors at the context level (outside the organization) can impact individual mindfulness at work, as stated in the expert interviews. Mindfulness is considered a “way of life” and there is no clear distinction between work and private life. Most interviewed experts who practice meditation exercises do the longer exercises at home. An important factor is therefore the support from the home front, for example, being able to do (longer) mindfulness exercises at home undisturbed. In addition, talking about insights from mindfulness (eg, regarding emotions) with those at home can be stimulating for mindfulness at work, according to the experts. Second, it is increasingly common to work from home and the home office can also be considered part of the working environment. Thus, the physical environment of the home office can impact employee mindfulness on the days they work from home, according to the experts. A tidy desk, an ergonomic chair, and a serene, natural working environment are mentioned here.

All the identified factors were summarized in the theoretical multilevel mindfulness model presented in Figure 2.

DISCUSSION

Based on a review of the scientific literature and expert interviews, factors in the organizational context were identified that stimulate and/or hinder mindfulness of employees. The factors were integrated into a theoretical multilevel mindfulness model, distinguishing factors at the task, team, supervisor, organizational, and context level. Although training individual mindfulness skills is very important—

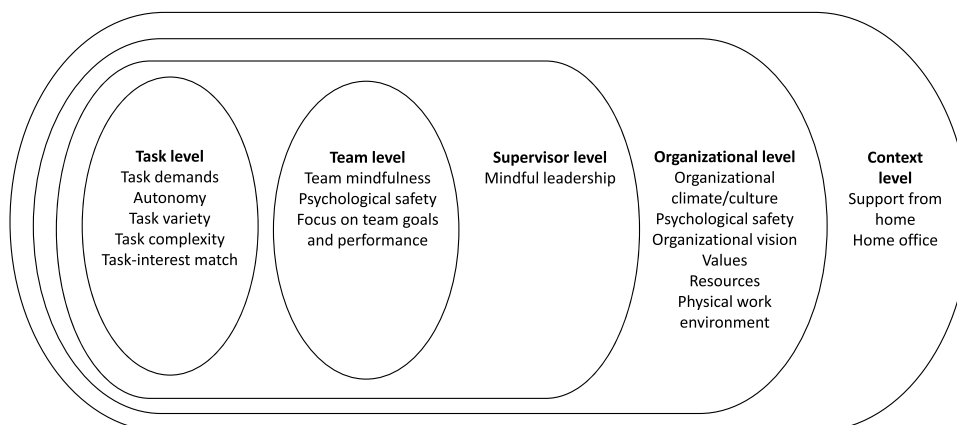


FIGURE 2. Theoretical multilevel mindfulness model.

possibly most important according to the interviews—the organization can play a facilitating and stimulating role in employee mindfulness. The importance of a multilevel approach toward mindfulness has been acknowledged,^{17,22,26} but this is one of the first studies to present an overview of organizational factors that stimulate mindfulness in the workplace. It shows that various levels in the organization play a role in stimulating employee mindfulness. Recently, Shahbaz and Parker also presented an integrated framework for workplace mindfulness based on a literature review, including workplace factors as antecedents of mindfulness.²⁷ These include similar factors as found in our study, such as workload, task demands, job control, supervisor support, and organizational climate. In addition, we identified several factors such as the task-interest match, a focus on team goals and performance, organizational vision and values, and the physical work environment in the office, which impact employee mindfulness. In addition, in the interviews two context factors were named that were not found in the scientific literature, namely, support from home and the home office. Thus, we hope the current research further contributes to the field of multilevel mindfulness.

Strengths and Limitations

A strength of the current research is the combination of a scientific literature review and interviews with experts from research and practice (mindfulness trainers, business managers, and HR professionals). Given that research on multilevel mindfulness is still scarce, combining the scientific literature review with expert interviews made the findings richer, and contributed to a more practical interpretation of high-level concepts such as organizational culture. A second strength of the current research lies in further structuring the workplace factors into different levels of task, team, supervisor, organization, and context. This provides research and practice with a framework for further insight into how to stimulate mindfulness within organizations. This can guide the development of a multilevel approach and training programs for mindfulness in organizations.

A limitation of the current study is that the quality of the included scientific articles varies. Little research has been done on stimulating or hindering factors in the organizational context.^{27,50,51} Therefore, we also included scientific articles of lower quality in our review. To enrich and corroborate our findings, we conducted interviews with experts from science and practice.

Implications for Research and Practice

A multilevel approach has implications for research and practice. For research on mindfulness in the workplace, it is important to not only look at employee mindfulness, but it is also worthwhile to take into account factors at different levels in the organization. Research can give more insight into the influence of organizational factors on employee mindfulness, determine possible additional factors in the workplace, and develop and test the effectiveness of a multilevel approach to stimulate mindfulness in the workplace. Does a multilevel approach indeed strengthen mindfulness in the workplace and its beneficiary effects on for example employee stress and well-being, resilience, collaboration, concentration, and productivity? And how does this work? This will lead to a broader understanding of mindfulness in organizations.

In practice, looking at mindfulness from a multilevel perspective calls for broadening of mindfulness training programs and a novel competency framework for mindfulness trainers.⁴⁷ Currently, mindfulness training in organizations focuses on teaching mindfulness to individuals (both employees and supervisors). In addition to developing mindfulness in individuals, it can be expected that the need for training programs focusing on mindfulness of team and organizational processes will grow. Thus, mindfulness training organizations may need to broaden their approach. An example of such a “next generation” training program can be found in the study by Tobias Mortlock and colleagues, which combined both individual and team mindfulness training among military officers.³⁸ For organizations interested in implementing mindfulness, a theoretical multilevel mindfulness model

could also guide the understanding of and application of a broadened approach toward mindfulness in the workplace.

Future Research

Research on multilevel mindfulness is still in its infancy. The current research, based on a scientific literature review and expert interviews, is exploratory in nature and has gathered new information on which workplace factors are important for stimulating employee mindfulness. The theoretical multilevel mindfulness model presented in this article should be further filled by other research. Additional research may also further substantiate the relationships between the workplace factors and employee mindfulness. Another avenue for future research is to develop a multilevel approach to strengthen the application of mindfulness within organizations. This approach should consist of tailor-made interventions directed at different levels of an organization, in coherence with each other. The goal is to enhance the positive effects of individual mindfulness training through additional task, team, and organizational-level interventions. In addition to interventions that affect the different levels of the organization (such as work design and leadership training), additional activities related to mindfulness training can also be organized, such as team workshops and come-back meetings. All this contributes to a better landing of mindfulness within organizations. Finally, an important challenge for the future lies in making mindfulness more “normal” within organizations. The interviewed experts feel that mindfulness is often still seen as something vague by managers in organizations. As the current research shows, a positive organizational climate toward mindfulness and psychological safety are very important for employees to display mindfulness at work. Only by normalizing mindfulness in organizations can its full potential be unlocked.

CONCLUSIONS

The current research contributes to the field of multilevel mindfulness by presenting a model containing factors at different levels in the organization that are important for stimulating employee mindfulness. Although research in this area is still scarce, we believe that it is a promising avenue for future research into mindfulness in the workplace. A multilevel approach can strengthen the positive effects of individual mindfulness training in the workplace, contributing to, happy individuals and sustainable organizations.

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REFERENCES

1. Brynjolfsson E, McAfee A. *The Second Machine Age*. New York & London: Norton; 2014.
2. OECD (2017). *Future of Work and Skills*. Paper presented at the 2nd Meeting of the G20 Employment Working Group. Hamburg, Germany.
3. Eurofound and the International Labour Office. *Working anytime, anywhere: The effects on the world of work*. Publications Office of the European Union, Luxembourg, and the International Labour Office, Geneva; 2017.
4. McKinsey Global Institute (2020). *The future of work in Europe. Discussion paper*. Accessed 19 July 2023 via The future of work in Europe | McKinsey
5. World Economic Forum (WEF); 2023). *The Future of Jobs Report 2023*. The Future of Jobs Report 2023 | World Economic Forum (weforum.org)
6. Houtman DS, Preenen P, Kraan K, de Vroome E. *Intensivering van werk in Nederland: Wat is het, waar staan we en wat te doen?* WRR working paper; 2020.
7. TNO & RIVM. *De toekomst van gezond en veilig werken, een horizonscan*. TNO/RIVM, Leiden/Bilthoven, the Netherlands; 2023.
8. Ramstetter L, Rupprecht S, Mundaca L, et al. Fostering collective climate action and leadership: insights from a pilot experiment involving mindfulness and compassion. *IScience* 2023;26:106191.
9. Baminawatta A, Solangaarachchi I. Trends and developments in mindfulness research over 55 years: a bibliometric analysis of publications indexed in web of science. *Mindfulness (N Y)* 2021;12:2099–2116.

10. Khoury B, Sharma M, Rush SE, Fournier C. Mindfulness-based stress reduction for healthy individuals: a meta-analysis. *J Psychosom Res* 2015;78:519–528.
11. Bartlett L, Martin A, Neil AL, et al. A systematic review and meta-analysis of workplace mindfulness training randomized controlled trials. *J Occup Health Psychol* 2019;24:108–126.
12. Tang YY, Hölzel BK, Posner MI. The neuroscience of mindfulness meditation. *Nat Rev Neurosci* 2015;16:213–225.
13. Weder BJ. Mindfulness in the focus of the neurosciences - the contribution of neuroimaging to the understanding of mindfulness. *Front Behav Neurosci* 2022;16.
14. Heckenberg RA, Eddy P, Kent S, Wright BJ. Do workplace-based mindfulness meditation programs improve physiological indices of stress? A systematic review and meta-analysis. *J Psychosom Res* 2018;114:62–71.
15. Valley MA, Stallones L. Effect of mindfulness-based stress reduction training on health care worker safety: a randomized waitlist controlled trial. *J Occup Environ Med* 2017;59:935–941.
16. Van der Torre W, Koopmans L, Bouwens L, van den Bergh R, Wiersema N. *Het effect van mindfulness interventies op werknemers: Een literatuurverkenning*. TNO, Leiden, The Netherlands; 2020.
17. Slemp GR, Jach HK, Chia A, Loton DL, Kern ML. Contemplative interventions and employee distress: a meta-analysis. *Stress Health* 2019;35:227–255.
18. Johnson DC, Thom NJ, Stanley EA, et al. Modifying resilience mechanisms in at-risk individuals: a controlled study of mindfulness training in marines preparing for deployment. *Am J Psychiatry* 2014;171:844–853.
19. Eby L, Allen TD, Conley KM, Williamson RL, Henderson TG, Mancini VS. Mindfulness-based training interventions for employees: a qualitative review of the literature. *Hum Res Manag Rev* 2019;29:156–178 ISSN 1053-4822.
20. Bishop SR, Lau M, Shapiro S, et al. Mindfulness: a proposed operational definition. *Clin Psychol* 2004;11:230–241.
21. Kabat-Zinn J. Mindfulness-based interventions in context: past, present, and future. *Clin Psychol* 2003;10:144–156.
22. Jamieson SD, Tuckey MR. Mindfulness interventions in the workplace: a critique of the current state of the literature. *J Occup Health Psychol* 2017;22:180–193.
23. Walsh WB. Some theories of person/environment interaction. *J Coll Stud Person* 1975;16:107–113.
24. Edwards JR, Cooper CL. The person-environment fit approach to stress: recurring problems and some suggested solutions. *J Organ Behav* 1990;11:293–307.
25. Kristof-Brown A, Guay RP. Person–environment fit. In: Zedeck S, ed. *APA Handbook of Industrial and Organizational Psychology, Vol. 3. Maintaining, Expanding, and Contracting the Organization*. American Psychological Association; 2011:3–50.
26. Rupprecht S, Koole W, Chaskalson M, Tamdjidi C, West M. Running too far ahead? Towards a broader understanding of mindfulness in organisations. *Curr Opin Psychol* 2019a;28:32–36.
27. Shahbaz W, Parker J. Workplace mindfulness: an integrative review of antecedents, mediators, and moderators. *Hum Res Manag Rev* 2022;32: <https://doi.org/10.1016/j.hrmr.2021.100849>. *
28. Lawrie EJ, Tuckey MR, Dollard MF. Job design for mindful work: the boosting effect of psychosocial safety climate. *J Occup Health Psychol* 2018;23:483–495.
29. West M. *Compassionate Leadership: Sustaining Wisdom, Humanity and Presence in Health and Social Care*. The Swirling Leaf Press, United Kingdom; 2021.
30. Karasek RA, Theorell T. *Healthy Work: Stress, Productivity, and the Reconstruction of Working Life*. New York: Basic Books; 1990.
31. Karasek RA. Job demand, job decision latitude and mental strain; implication for job design. *Adm Sci Q* 1979;24:285–308.
32. Van Amelsfoort P, Van Hoogtem G. Towards a total workplace innovation concept based on sociotechnical systems design. In: Oeij PRA, Rus D, Pot FD, eds. *Workplace Innovation: Theory, Research and Practice*. Cham, Switzerland: Springer International Publishing; 2017:281–299.
33. Dhondt S, Totterdill P, Boermans S, Ziauberyte-Jakstiene. Five steps to develop workplace innovation. In: Oeij PRA, Rus D, Pot FD, F.D., eds. *Workplace Innovation: Theory, Research and Practice*. Cham, Switzerland: Springer International Publishing; 2017:301–319.
34. Dane E. Paying attention to mindfulness and its effects on task performance in the workplace. *J Manag* 2011;37:997–1018.
35. Reb J, Narayanan J, Wei HZ. Mindfulness at work: antecedents and consequences of employee awareness and absent-mindedness. *Mindfulness* 2015;6:111–122.
36. Yu L, Zellmer-Bruhn M. Introducing team mindfulness and considering its safeguard role against conflict transformation and social undermining. *Acad Manag J* 2018;61:324–347.
37. Farley S, Wu DW, Song LJ, Pieniazek R, Unsworth K. Coping with workplace incivility in hospital teams: how does team mindfulness influence prevention- and promotion-focused emotional coping? *Int J Environ Res Public Health* 2022;19:16209.
38. Tobias Mortlock J, Carter A, Querstet D. Extending the transformative potential of mindfulness through team mindfulness training, integrating individual With collective mindfulness, in a high-stress military setting. *Front Psychol* 2022; 13:867110.
39. Beverage S, DeLong K, Herold IMH, Neufeld K. (2014). Mindful leadership defined and explained. In *Advances in Librarianship* (Vol. 38, pp. 21-35). Leeds: Emerald Group Publishing Limited. *
40. King E, Badham R. The wheel of mindfulness: a generative framework for second-generation mindful leadership. *Mindfulness* 2018;11:166–176.
41. West M, Eckert R, Collins B, Chowla R. *Caring to Change. How Compassionate Leadership can Stimulate Innovation in Health Care*. London, UK: The King's Fund; 2017.
42. Schulte V, Steinebach C, Veth KN. (2022, p. 6). Introduction: key elements of leadership in the twenty-first century. In: *Mindful Leadership in Practice* (Eds. Schulte, Steinebach & Veth). Cham, Switzerland: Springer. doi: 10.1007/978-3-030-97311-7.
43. Wongkom S, Sanrattana W, Chusorn P. The structural relationship model of indicators of mindful leadership for primary school principals. *Int J High Educ* 2019;8.
44. Ehrlich J. Mindful leadership: focusing leaders and organizations. *Organ Dyn* 2017;46:233–243.
45. Reb J, Narayanan J, Chaturvedi S. Leading mindfully: two studies on the influence of supervisor trait mindfulness on employee well-being and performance. *Mindfulness* 2014;5:36–45.
46. Ritchie-Dunham JL. (2014). Mindful leadership. In: *The Wiley Blackwell Handbook of Mindfulness* (Eds. A. Le, C.T. Ngunoumen and E.J. Langer). doi: 10.1002/9781118294895.ch24 *
47. Rupprecht S, Falke P, Kohls N, Tamdjidi C, Wittmann M, Kersemaekers W. Mindful leader development: how leaders experience the effects of mindfulness training on leader capabilities. *Front Psychol* 2019b;10:art. No. 1081.
48. Passmore J. Mindfulness in organizations (part 2): a practitioners' guide to applying mindfulness-based approaches in leadership development, workplace wellbeing and coaching. *Ind Commercial Train* 2019;51:165–173.
49. Krishnan Hema A. Mindfulness as a strategy for sustainable competitive advantage. *Business Horizons* 2021;64:697–709.
50. Hülshager UR, Walkowiak A, Thommes MS. How can mindfulness be promoted? Workload and recovery experiences as antecedents of daily fluctuations in mindfulness. *J Occup Organ Psychol* 2018;91:261–284.
51. Kalafatoğlu Y, Turgut T. (2019). Individual and organizational antecedents of trait mindfulness. *J Manag Spirituality Religion*, Volume 16, Number 199, 220