Workplace mindfulness: an integrative review of antecedents, mediators, and moderators

Article

Accepted Version

CentAUR

Central Archive at the University of Reading

Reading's research outputs online

Workplace mindfulness: An integrative review of antecedents, mediators, and moderators

Wahab Shahbaz[a,*], Jane Parker[b]

[a,b] School of management, Massey University, Auckland, New Zealand

Corresponding author

Wahab Shahbaz

Email: w.shahbaz@massey.ac.nz

Address: Quad B Building Room 2.06, Massey University, Gate 1 Albany Expressway, SH17 Albany 0632, Auckland, New Zealand

Declaration of interest

Submission declaration and verification

The article has not been published previously and that it is not under consideration for publication elsewhere, and that it will not be published elsewhere in the same form.

Workplace mindfulness: An integrative review of antecedents, mediators, and moderators

Abstract

In recent years, research on and the practice of mindfulness have received greater attention in organizational scholarship. Much of the prior work in this area is directed at the workplace outcomes of mindfulness interventions in terms of employees' well-being, relationships, and performance. Meanwhile, there is an absence of work that integrates research findings concerning individual and workplace factors that affect workplace mindfulness and determine when and how they influence workplace outcomes. This article reviews current organizational literature concerning potential antecedents of workplace mindfulness as well as mediating mechanisms and boundary conditions of the relationship between workplace mindfulness and workplace outcomes. Based on 32 selected studies, an integrated framework of workplace mindfulness is developed, helping us to summarize the extant scholarship in this area. The framework provides a foundation for an emerging research area and outlines key directions for future research.

1. Introduction

Mindfulness is defined as the "state of being attentive to and aware of what is taking place in the present" (Brown & Ryan, 2003, p. 822). Currently, both the practice of mindfulness and research on it in the workplace are increasing (Good et al., 2016). Various workplace contexts, including hospitals, universities, technological firms, and banks, have adopted mindfulness interventions to benefit employees and the organization (Eby et al., 2019; Qiu &

Rooney, 2017). A large body of studies examine the relationship between mindfulness and workplace benefits such as stress reduction, job satisfaction, and job performance of employees (Malarkey et al., 2013; Reb et al., 2015; Shonin et al., 2014). In organizational scholarship including management sciences, organizational psychology, and organizational behavior, a key concern of studies has been to examine the impact of a mindfulness intervention on workplace outcomes. For instance, mindfulness interventions have been shown to improve employees' creative ability (Byrne & Thatchenkery, 2019), health, well-being (Wolever et al., 2012), and work-life balance (Michel et al., 2014). Less attention has been paid to individual and workplace factors that affect workplace mindfulness and the factors that mediate or moderate the relationship between workplace mindfulness and workplace outcomes.

An insight into individual and workplace factors related to a workplace variable is important for multiple reasons. It can help to address multi-level workplace concerns such as how factors at individual, group, and organizational levels affect workplace variables. It can also facilitate interdisciplinary research by identifying the different levels of analysis such as geographical, social, and psychological. Finally, an insight into individual and workplace factors is vital to comprehend the uniqueness of the context and boundary conditions of the relationship between organizational variables for theoretical development as well as to enhance the application of research into organizational practice (Johns, 1993; 2006; 2018).

Individual and workplace factors can potentially be responsible for variation in mindfulness experiences of employees as these factors can promote or hinder these experiences. They can also act as a mediating mechanism that mindfulness works through to influence workplace functions or as the boundary conditions of these effects that mindfulness has on these outcomes (Dane, 2011; Hulsheger et al., 2018; Sutcliffe et al., 2016). In other words, individual and workplace factors can promote employees' mindfulness experiences without

3

mindfulness interventions in the workplace (Hulsheger et al., 2018), determine when mindfulness is beneficial versus costly for the organizations (Dane, 2011), and explain the process of the relationship between mindfulness and workplace outcomes (Good et al., 2016). In this regard, an insight into individual and workplace factors that affect workplace mindfulness and the factors that can mediate or moderate mindfulness/outcomes relationship is important to advance organizational theories and the applicability of research into practice (Dane, 2011; Good et al., 2016; Hulsheger et al., 2018; Johns, 2018; Reb et al., 2020; Sutcliffe et al., 2016).

Most of the existing literature reviews on workplace mindfulness have focused on the characteristics and outcomes of mindfulness interventions in the workplace (Allen et al., 2015; Eby et al., 2019; Jamieson & Tuckey, 2017; Johnson et al., 2020). These reviews have not integrated individual and workplace factors as antecedents of workplace mindfulness as well as the factors that can mediate or moderate the mindfulness/outcomes relationship. While two reviews have integrated a broader range of factors that can mediate the relationship between workplace mindfulness and workplace outcomes (Glomb et al., 2011; Good et al., 2016), a key limitation is that they have not encompassed antecedents of workplace mindfulness and moderators of the mindfulness/outcomes relationship. Another review by Sutcliffe et al. (2016) discussed the antecedents of workplace mindfulness and mediators of the mindfulness/outcomes relationship. However, their review has not provided a comprehensive framework of workplace mindfulness that integrates individual and workplace factors as antecedents, mediators, and moderators. Overall, knowledge of antecedents, mediators, and moderators related to workplace mindfulness is fragmented in the extant organizational literature and existing reviews have not provided a comprehensive model with which to organize and reconcile understandings of antecedents of workplace

mindfulness as well as mediating and moderating factors of the mindfulness/outcomes relationship.

Presently, there is a need for an integrative literature review of workplace mindfulness that might help to develop an overarching framework of individual and workplace factors as antecedents, mediators, and moderators. An integrative literature review refers to the "research that reviews, critiques, and synthesizes representative literature on a topic in an integrated way such that new frameworks and perspectives on the topic are generated" (Torraco, 2005, p. 356). An integrative literature review of this scholarship is important for two reasons. First, the organizational literature of antecedents, mediators, and moderators related to workplace mindfulness is scattered. Some authors have highlighted that there is a need to focus on antecedents of workplace mindfulness and mediators or moderators of the mindfulness/outcomes relationship in order to advance the research and practice of workplace mindfulness (Dane, 2011; Good et al., 2016; Hulsheger et al., 2018; Johns, 2006; 2018; Reb et al., 2020; Sutcliffe et al., 2016). The review can help us to synthesize the existing limited understanding of this significant and overlooked area of research. Second, it is important to analyze and critique the existing literature in this area so as to generate new knowledge and directions for future research (Torraco, 2005).

In response to these significant gaps in the extant scholarship, this article reviews the literature for two purposes. First, it seeks to generate an initial framework by integrating prior knowledge relating to individual and workplace factors as antecedents, mediators, and moderators related to workplace mindfulness. Second, it analyzes and critiques existing literature so as to highlight key theoretical gaps that can be examined in future research. The remainder of this article is organized as follows. Section 2 discusses the concept of mindfulness in the workplace, followed by section 3 that outlines the methodological approach used to select and analyze studies for review. The fourth section integrates

5

antecedents, mediators, and moderators related to workplace mindfulness, as suggested by the literature, culminating with the presentation of an integrated framework. Finally, in Section 5, there is an analysis and critique of the literature with regard to workplace mindfulness and future research implications, followed by the conclusion section.

2. Defining workplace mindfulness

The word mindfulness derives from the word "sati". Sati has two different meanings: "to remember" and "awareness" (Bodhi, 2011). Mindfulness terminology is widely used in Buddhist teaching (Williams & Kabat-Zinn, 2013). Buddha offered a framework for understanding the world, guiding humanity to achieve freedom, peace, and happiness. In this framework, mindfulness as awareness is an important aspect of Buddha's teaching that provides a foundation from which to achieve relief from suffering through insight and wisdom (Bodhi, 2011). Although mindfulness originates from this teaching, over the last few decades, it has been studied in different scientific domains (Kalafatoglu & Turgut, 2019), including clinical, social, and organizational psychology. In these domains, various definitions of mindfulness have been proposed by researchers (Glomb et al., 2011). For instance, Kabat-Zinn (2003) defined mindfulness as "the awareness that emerges through paying attention on purpose, in the present moment, and nonjudgmentally to the unfolding of experience moment by moment" (p. 145). Good et al. (2016) suggested that mindfulness involves an experience-based mode of mind rather than a conceptual mode. In an experiential processing mode, the individual pays attention to the present experience rather than pre-existing thoughts and concepts. In this way, the experiential processing mode of the mind facilitates present moment oriented conscious and non-habitual reactions. Another definition of mindfulness highlighted two key components of mindfulness: (i) self-regulation of attention towards the present moment, and (ii) a specific orientation that involves curiosity,

openness, and acceptance of the present experiences. From this perspective, mindfulness starts from the observation of the current thoughts, feelings, and sensations. It enables the state of present experiences consciousness which is important for awareness. Moreover, mindfulness includes an attitude of curiosity that takes notice of each aspect of current experiences and acceptance of new experience without any resistance (Bishop et al., 2004). Currently, there is conceptual confusion about the phenomenon of mindfulness as there is a lack of consensus among scholars on the definition as well as essential components of mindfulness (Baer et al., 2009; Cigolla & Brown, 2011; Grossman, 2011; Sutcliffe et al., 2016).

In organizational science, mindfulness is often operationalized as a state, trait, practice, and intervention (Good et al., 2016; Jamieson & Tuckey, 2017). State mindfulness pertains to the temporary state of present moment consciousness while trait mindfulness refers to the stable individual ability of engagement in the mindfulness processes. In other words, state mindfulness refers to the within-person variation of mindfulness experiences and trait mindfulness refers to a between-person variation of mindfulness ability (Brown & Ryan, 2003; Jamieson & Tuckey, 2017). Both state and the trait-like nature of mindfulness can be measured using mindfulness-based scales such as the Mindfulness Attention and Awareness Scale (MAAS) (Brown & Ryan, 2003; Jamieson & Tuckey, 2017). MAAS includes 15 attention and awareness related questions or items, such as "I rush through activities without being really attentive to them", and "I do jobs or tasks automatically, without being aware of what I'm doing". These items are scored on a 6-point Likert-type scale from 1 (almost always) to 6 (almost never). These items are negatively formulated which means that mindfulness is determined by reverse scoring of these items (Bergomi et al., 2013; Chiesa, 2013). Similar to MAAS, other scale measures have also been introduced to measure mindfulness such as the Toronto mindfulness scale (TMS) (Lau et al., 2006), Philadelphia

mindfulness scale (Cardaciotto et al., 2008), Freiburg mindfulness inventory (FMI) (Buchheld et al., 2001; Walach et al., 2006), and the Five-factor mindfulness questionnaire (FFMQ) (Baer et al., 2008).

Mindfulness is also conceptualized as practice. Mindfulness practices involve different techniques such as paying attention to breathing, walking, and eating, as well as body scanning and yoga exercises. They also mainly focus on improving the trait/state mindfulness or capacity for attention to and awareness of the present (Cigolla & Brown, 2011; Glomb et al., 2011; Kabat-Zinn, 2009). The organizational literature also studies mindfulness as an intervention. Mindfulness interventions are formal training programs coupled with different mindfulness practices such as Mindfulness-based Stress Reduction (MBSR; Kabat-Zinn, 2009), a popular mindfulness-based training program. MBSR involves an eight-week long practice of different mindfulness techniques (e.g. sitting mindfulness practice and body scanning, group discussion, and home practice) (Jamieson & Tuckey, 2017; Khoury et al., 2017). Reflecting the scope of extant work, this article uses the term 'workplace mindfulness' to represent mindfulness as a state, trait, practice, and intervention in the workplace context.

3. Method

3.1   Literature search and inclusion criteria

A comprehensive literature search using the Google Scholar and Scopus databases was conducted in September 2020 to identify studies that involved the antecedents of workplace mindfulness and mediators or moderators of the mindfulness/outcomes relationship. The keywords "work mindfulness", "employee mindfulness", "leader mindfulness", "professional mindfulness", "occupational mindfulness", "mindfulness context", and "mindfulness in organization" were used to identify relevant studies in the databases.

Studies published in English and fitting the following selection criteria were included. First, mindfulness was explicitly discussed in relation to employees or workplace settings. Studies that involved patients, students, or the general public, without explicitly discussing the occupational settings, were thus excluded. Second, at least one individual or workplace factor was included in these studies either as an antecedent of workplace mindfulness, mediator, or moderator of the mindfulness/outcomes relationship. Third, only empirical studies published in peer-reviewed journals were included, with no restrictions on the year of publication applied. In sum, the review included the published empirical studies based on mindfulness in work settings with at least one individual or workplace factor. Based on the selection criteria, the title and abstract of multiple studies were reviewed to identify the relevant articles. Reference lists of selected studies were also screened to include additional studies that met the selection criteria of this review. Following this criterion and selection procedure, a total of 32 studies were found to be eligible for review.

3.2   Overview of selected studies

From those included in the review, seven studies have used the mindfulness intervention method to study workplace mindfulness. Twenty-three studies used self-reported measures of workplace mindfulness without mindfulness interventions. Two studies (Hulsheger et al., 2012; Kay & Skarlicki, 2020) conducted two independent surveys to incorporate both self-reported as well as mindfulness intervention methods to investigate workplace mindfulness. Furthermore, twenty-eight studies used a questionnaire-based method to collect research data. Only three studies (Irving et al., 2014; Lyddy & Good, 2017; Lyddy et al., 2016) conducted qualitative interviews to collect research data and one study (Dane & Brummel, 2014) conducted interviews as well as using a questionnaire-based method for data collection (see Table 1).

Among the selected studies, the MAAS scale was used by nineteen to measure workplace mindfulness while others used TMS, FMI, EQ, and FFMQ (see Table 1). Of the total selected studies, twenty-two examined the mediators of the relationship between workplace mindfulness and outcomes. Nine discussed the antecedents of workplace mindfulness, while only seven provided empirical evidence of factors that moderate the relationship between workplace mindfulness and outcomes (see Table 2).

------------------------------------- Insert table 1 about here --
------------------------------------- Insert table 2 about here --

4. Antecedents, mediators, and moderators related to workplace mindfulness

4.1 Antecedents of workplace mindfulness

Antecedents are factors that can facilitate or inhibit workplace mindfulness (Hulsheger et al. 2018; Sutcliffe et al., 2016). A review of the selected studies showed that nine studies highlighted individual and work-related factors that act as antecedents of workplace mindfulness. For instance, one study suggested that sleep quality and psychological detachment from the preceding day facilitate, while high workload inhibits, the state mindfulness of employees (Hulsheger et al., 2018). Kalafatoglu and Turgut (2019) found that individual goal orientation and an organizational caring climate predict the trait mindfulness of employees. Hence employees who focus on self-development, monitor their own performance, and perceive that the organization cares about their well-being tend to be more mindful than others. Their study also found a negative relationship between performance-avoidance (i.e. a dimension of individual goal orientation) and trait mindfulness.

Some studies suggested that individual factors, including employees' psychological demands, job control (i.e. an environment that encourages employees' skills and decisions) (Lawrie et

al., 2018), job experience (Mitmansgruber et al., 2008), and metacognitive beliefs, predict mindfulness in the workplace (Reina & Kudesia, 2020). A series of studies have also found work-related factors that predict workplace mindfulness. For instance, an online survey-based study of 231 working adults in Singapore found that organizational constraints (e.g. lack of resources, role conflict) and task routineness (e.g. autonomy, variety of experiences) can inhibit workplace mindfulness while organizational support including job autonomy (freedom of work) and supervisor support can facilitate it (Reb et al., 2015). Recently, Reina and Kudesia (2020) found that workplace mindfulness of employees depends on the situational factors. For example, challenging tasks that require attention can increase state mindfulness of employees, and off-task attentional demands or organizational constraints can inhibit their mindful experiences. Three interview-based studies highlighted individual and workplace factors that facilitate or hinder workplace mindfulness. These factors include situational demands (e.g. attentional, emotional, task-related), mindfulness-related experience, mindfulness-related self-efficacy (Lyddy & Good, 2017), internal challenges (e.g. pain, discomfort, anxiety), situational challenges (e.g. busy work schedule, family issues) (Irving et al., 2014), noise, task demands, social context, fatigue, rumination, and emotions (Lyddy et al., 2016). These studies thereby indicate that individual and workplace factors can enhance, hinder or anticipate workplace mindfulness.

4.2 *Mediators of the relationship between workplace mindfulness and workplace outcomes*

Mediators are factors that can explain the mechanism of the relationship between workplace mindfulness and workplace outcomes (Good et al., 2016; Sutcliffe et al., 2016). A series of selected studies has found that trait mindfulness is associated with work-family balance via vitality (i.e. positive experience of liveliness) and sleep quality (the sufficiency of sleep that can affect the ability to function) (Allen & Kiburz, 2012), team-member exchange (i.e. the individual perception about the exchange relationship with the group members) via emotional

11

regulation (Hawkes & Neale, 2020), work engagement via recovery level (Liu et al., 2020), work injuries via safety compliance (Kao et al., 2019), collaboration to manage workplace conflict via cognitive reappraisal (Kay & Skarlicki, 2020), leadership organizational transformation (i.e. ability to create and drive change) via leadership self-mastery (i.e. ability to develop and manifest skills) (Kind & Haar, 2017), employees' work engagement and well-being via job-related positive affect, hope, and optimism (Malinowski & Lim, 2015), subordinate performance via quality of leader and employee relationship, quality of leader and employee relationship via employee stress and (leader and employee-related) interpersonal justice (Reb et al., 2019), and task performance and turnover intentions via emotional exhaustion (Reb et al., 2017). Recently, a study found that state mindfulness is related to task performance via problem-solving confidence of employees (Forjan et al., 2020).

Another series of studies has found that trait/state mindfulness is associated with spouse's work-family enrichment and spouse's work-family balance via empathic concern (Chen et al., 2020), employee creativity via creative process engagement (Cheung et al., 2020), job satisfaction via positive affect (or experience), emotional exhaustion and job satisfaction via surface acting (i.e. an emotional regulation strategy) (Hulsheger et al., 2012), sleep quality via psychological detachment (Hulsheger et al., 2014), leaders' well-being via psychological capital (hope, self-efficacy, resilience, and optimism) (Roche et al., 2014), and contextual performance (that supports a positive environment at psychological, organizational, and social levels) via thriving (learning and vitality experience) (Sahin et al., 2020).

Some studies have also found that mindfulness interventions affect negative moods at home and sleep quality via trait mindfulness, negative moods at home via rumination on work at home (Crain et al., 2017), prosocial behavior via empathy and perspective-taking (Hafenbrack et al., 2020), task motivation via future focus and state arousal, task focus via

detachment from stress (Hafenbrack & Vohs, 2018), emotional exhaustion via surface acting (Hulsheger et al., 2012), collaboration in conflict management via cognitive reappraisal (which is a form of self-regulation) (Kay & Skarlicki, 2020), task performance and job satisfaction via character strengths or positive personality traits (Pang & Ruch, 2019), as well as occupational stress, burnout, anxiety, and depression via self-compassion and trait mindfulness (Roeser et al., 2013). Irving et al. (2014) conducted an interview-based study which highlighted that focusing, observing, accepting, and changing can mediate the relationship between mindfulness and outcomes in terms of mindfulness communication, self-compassion, self-care, discomfort, choice, and pleasure.

4.3   Moderators of the relationship between workplace mindfulness and workplace outcomes

Moderators are the contingency conditions or factors that can change the relationship between workplace mindfulness and outcomes (Dane, 2011). From this review, it was found that only seven studies empirically examined the role of moderating factors on the relationship between workplace mindfulness and outcomes. Cheung et al. (2020) recently found that the relationship between mindfulness and creative performance is contingent on employees' perception relating to leader humility (i.e. a tendency to learn from others). This suggests that the relationship between mindfulness and creative performance of employees is stronger when leaders are humble with their subordinates and weaker when leaders behave arrogantly towards their subordinates. Research has also shown that the level of work engagement as well as work experience moderates the relationship between workplace mindfulness and job performance of restaurant employees (Dane & Brummel, 2014), a safety climate moderates the relationship between mindfulness and safety behavior (safety compliance and safety participation) (Kao et al., 2019), tenure duration (across role and organization) moderates the relationship between mindfulness and both dimensions of

leadership performance (i.e. self-mastery and leadership organizational transformation) (King & Haar, 2017), a psychosocial safety climate (i.e. organizational concern related to workers' psychological health) moderates the relationship between job control and mindfulness (Lawrie et al., 2018), team mindfulness (mutual belief of team members related to attention, awareness, and non-judgmental processing of experiences at the collective level) positively moderates the relationship between trait mindfulness and work engagement (Liu et al., 2020), and task complexity (high versus low) moderates the relationship between workplace mindfulness and job performance (task and safety) (Zhang et al., 2013). In sum, these studies suggest that the relationship between workplace mindfulness and outcomes is contingent upon certain factors at both the individual and organizational levels.

-------------------------------------- Insert figure 1 about here -------------------------------------

5. Discussion

Research on workplace mindfulness is increasing in organizational scholarship. Previous reviews of workplace mindfulness have not presented a comprehensive framework of individual and workplace factors with which to synthesize knowledge pertaining to the antecedents of workplace mindfulness as well as mediators and moderators of the mindfulness/outcomes relationship (Allen et al., 2015; Eby et al., 2019; Good et al., 2016; Glomb et al., 2011; Jamieson & Tuckey, 2017; Johnson et al., 2020; Sutcliffe et al., 2016). A comprehensive understanding of these factors can help us to advance organizational scholarship and practice as well as highlight future research directions (Johns, 1993; 2006; 2018; Reb et al., 2020; Torraco, 2005).

The goal of this review was to synthesize, analyze, and critique the extant organizational literature that examines the predicting, mediating, and moderating factors associated with workplace mindfulness to develop an initial framework of existing knowledge pertaining to

workplace mindfulness. Using selection criteria, 32 studies were identified as relevant for an integrative review. A framework of workplace mindfulness is introduced that integrates individual and workplace factors as antecedents, mediators, and moderators.

5.1 Critique and implications for further research

The following discussion highlights the core issues and discrepancies in the organizational literature concerning workplace mindfulness as well as the major directions for future researchers.

5.1.1 Nomological network of individual/workplace factors

Overall, the review suggests that the role of individual and workplace factors that affect workplace mindfulness and the factors that mediate or moderate the mindfulness/outcomes relationship has been largely overlooked in much extant research; only 32 relevant studies were found to address it. The review also shows that most of the selected studies were published in recent years (see Table 1) which highlights the development of an encouraging trend wherein studies are beginning to investigate the factors that have an impact on workplace mindfulness and its relationship with workplace outcomes. It is good to see this trend as it addresses an important but overlooked area of research. As an important step, this article serves to advance this work by framing extant organizational literature to provide a foundation for scholarship and practice that can be drawn upon by future scholars and practitioners.

Our review found that a key focus in the literature has been on individual and organizational-level factors affecting workplace mindfulness. In future work, the nomological network of individual and workplace factors could be extended by exploring supra-organizational factors that could be associated with workplace mindfulness. Industrial and other macro features are likely to influence the mindfulness experiences of employees. For example, one might

anticipate that service sector employees who deal with the public experience mindfulness differently from those who work in a manufacturing plant where employees often have less interaction with external stakeholders (e.g. Arrowsmith & Parker, 2013). Similarly, Van Gordon et al. (2018) highlighted the role of the natural environment in facilitating mindfulness experiences. Future work might thus explore the antecedents of workplace mindfulness at the macro level rather than merely individual and organizational levels.

Furthermore, this review suggests that only individual factors have been studied as a mediating mechanism of the relationship between workplace mindfulness and workplace outcomes. Yet Mathieu et al. (2008) suggested that the mediating process can be examined at multiple levels. There is thus a need for studies that investigate the mediating variables at the group, organizational, and social levels. For instance, workplace mindfulness might help employees to address their workplace challenges (e.g. workload) in a manner that augments their job performance. Similarly, it might affect employee job performance through their work engagement. A recent integrated review of the literature on mindfulness and social sustainability suggested that mindfulness is linked not only to the individual and work-related benefits but also to broader social sustainability factors including poverty, inequality, fairness, livelihood, social inclusion, education, social justice, and community development (Sajjad & Shahbaz, 2020). In this regard, a mediation model of the relationship between workplace mindfulness and outcomes can be extended to encompass factors at a broader societal and geographical level (Johns, 2018).

The review also identified that only seven extant studies empirically investigated the factors that moderate the relationship between workplace mindfulness and outcomes (see Table 2). This highlights a further potential area of future research as this relationship might be contingent upon certain individual factors (e.g. gender, ethnicity, education) as well as workplace factors (e.g. industry, organizational culture, organizational size). An

understanding of such contingent conditions of the relationship can facilitate the application of research into practice (Dane, 2011; Johns, 2018). Moreover, the relationship between antecedents and workplace mindfulness is not exclusive of mediation and moderation processes. Multiple individual and workplace factors can act as mediators or moderators of the relationship between antecedents and workplace mindfulness. Two studies were found to identify the psychosocial safety climate as a moderating mechanism (Lawrie et al., 2018) and fatigue as a mediating mechanism (Hulsheger et al., 2018) between antecedents and workplace mindfulness. Further work in this area might extend understanding of these relationships and contextual uniqueness. Mindfulness is often examined as an individual characteristic while it can be a characteristic of a group (Liu et al., 2020) and an organization (Vogus & Sutcliffe, 2012). It would be worthwhile to explore the interrelationship between individual mindfulness, group mindfulness, organizational mindfulness, and individual/workplace factors. For instance, under what conditions individual mindfulness predicts group mindfulness and vice versa. Such an understanding would benefit practitioners who want to promote mindfulness in the workplace.

In sum, the initial framework or nomological network of individual/workplace factors presented in this review is ripe for updating in future studies that investigate further the antecedents, mediators, and moderators at the individual, group, organizational, and social levels that are related to workplace mindfulness. Such an insight into antecedents, mediators, and moderators can add value to the theory and practice of workplace mindfulness in the organization (Johns, 2018; Reb et al., 2020).

5.1.2 Nature of relationship between mindfulness and individual/workplace factors

Research to date on mindfulness has mainly focused on the relationship between mindfulness and workplace factors as a unidimensional phenomenon. However, this review establishes

that the relationship is a two-way process, with workplace mindfulness affecting workplace factors or functions and vice versa. For instance, mindfulness experiences in the workplace can foster psychological detachment and sleep quality. In turn, psychological detachment and sleep quality support the mindfulness experiences of employees the next day (Hulsheger et al. 2018). In a similar vein, the review also highlighted works that indicate workplace factors may not moderate the relationship between workplace mindfulness and workplace outcomes, and that mindfulness can act as a moderator of the relationship between various workplace factors. For instance, a study found that individual mindfulness of workers moderates the relationship between age and subjective well-being (e.g. work-family balance, vitality, life satisfaction, and psychological health) of workers (Allen et al., 2017). This means that mindfulness can moderate the relationship between various workplace variables (e.g. Montani et al., 2020). Future research might examine mindfulness not only as a predictor of workplace outcomes but also as a moderator or mediator of the relationship between workplace variables.

This study also reveals that most extant inquiries have used a single variable or pathway to investigate the mediation process whereas the mediation process can be expanded in terms of sequential and parallel pathways (Mathieu et al., 2008). For instance, Reb et al. (2019) used sequential as well as multi-level mediating pathways of the relationship between mindfulness and subordinate performance. They found that interpersonal justice and employee stress are multiple mediating pathways of the relationship between mindfulness and quality of the leader and employee relationship. They also found that employee interpersonal justice, employee stress, and quality of inter-relationships are sequential mediators between mindfulness and subordinate performance. Several other studies have also used a sequential and/or multi-level mediation and/or moderation model to investigate the relationship between variables (Chen et al., 2020; Cheung et al., 2020; Forjan et al., 2020; Kao et al., 2019; King &

Haar, 2017; Lawrie et al., 2018; Malinowski & Lim, 2015). Subsequent research could go beyond examination of a single mediation pathway to consider the sequential and multi-level nature of the mediation and moderation processes between variables. This would help to provide more nuanced understandings of mindfulness in the workplace context and potentially reveal the mechanisms through which these more complex relationships occur.

5.1.3 Theoretical framework

The review shows that the topic of antecedents, mediators, and moderators related to workplace mindfulness is emerging in organizational scholarship (see Table 1). Scholarship now needs to theoretically frame this emerging understanding of knowledge and relationships. The integrated framework developed here, based on key review findings, suggests that workplace mindfulness and individual/workplace factors are interrelated. Such an interrelationship can be examined with regard to both individual and context-oriented theories. For instance, Hulsheger et al. (2018) incorporated Hobfoll's (1989) conservation of resources framework to indicate the association between workplace mindfulness and individual/workplace factors. In this approach, the draining of one resource may result in the loss of another such that heavy workload can reduce employees' mindfulness experiences which in return negatively affect their psychological health and sleep quality. A few other studies have also used theoretical frameworks to investigate the relationship between workplace mindfulness and individual/workplace factors (Chen et al., 2020; Kao et al., et al., 2019; Lawrie et al., 2018; Liu et al., 2020) but this review found that the use of theoretical frameworks is relatively limited in this research area.

In future, researchers might use further theoretical frameworks that expand understandings of the interrelationship between workplace mindfulness and individual/workplace factors. For instance, Tett and Burnett's (2003) trait activation framework explains how certain individual

characteristics interact with work-related factors to influence workplace functions or outcomes, such that a fit between personality and environment can predict employees' performance (Johns, 2018). Mindfulness is often operationalized as an employee trait or characteristic in the organizational scholarship (Brown & Ryan, 2003; Jamieson & Tuckey, 2017). Trait activation theory can help to understand the impact of workplace context or environment on the relationship between trait mindfulness and workplace function. Similarly, event system theory conceptualizes context as an event that depends on time and space rather than a stable construct (John, 2018; Morgeson et al., 2015). Event system theory can be used to explain how employees' state of mindfulness or mindfulness experience is shaped or explained by a specific event or situation in the workplace such as negative feedback from a supervisor.

Positive organizational behavior (POB) is another prominent framework in organizational scholarship, defined "as the study and application of positively oriented human resource strengths and psychological capacities that can be measured, developed, and effectively managed for performance improvement in today's workplace" (Luthans, 2002, p. 59). Although mindfulness is not fully established in the field of POB, it can be considered a positive human strength or capacity that can be measured, developed, maintained, and related to workplace outcomes (Roche & Haar, 2019; Luthans et al., 2015). Mindfulness is often studied as a positive human factor related to multiple positive workplace functions in terms of well-being and performance (Good et al., 2016). Unfortunately, such relationships are not explicitly explained using the POB framework. Future research might use the POB framework to link mindfulness with individual/workplace factors and workplace outcomes.

5.1.4 Methodology

This review highlights that different mindfulness-based scales, mindfulness interventions, and research designs are used by researchers to investigate workplace mindfulness (see Table 1). One benefit of using varied tools, interventions, and designs is that this can increase one's confidence in the research findings. This review also suggests that most of the selected studies have used cross-sectional data (e.g. Allen & Kiburz, 2012; Hawkes & Neale, 2020; Sahin et al., 2020) while 11 studies have employed longitudinal data to examine the relationship between workplace mindfulness and factors at individual and organizational levels (Cheung et al., 2020; Crain et al., 2017; Forjan et al., 2020; Hulsheger et al., 2012; Hulsheger et al., 2014; Hulsheger et al., 2018; Lawrie et al., 2018; Liu et al. 2020; Pang & Ruch, 2019; Reb et al., 2015; Roeser et al., 2013). Maxwell and Cole (2007) highlighted that research findings based on cross-sectional designs can be biased and thus misleading because such designs reflect a constant relationship between variables and ignore the consequences of time on variables. They argued that independent, dependent, and mediating factors change over time and it is therefore important to consider longitudinal models of change while examining the mediation process. This review indicated that there is currently a deficit of studies employing longitudinal models. Given that many workplaces function in contexts where change is accelerating, workplace change is also quickening, underscoring the need for empirical inquiries that consider mindfulness in the workplace over time.

The review also indicates that most of the selected studies collected data from diverse industries (e.g. Forjan et al., 2020; Hawkes & Neale, 2020; Hulsheger et al., 2012) while some focused only on a specific industry such as healthcare, education, and restaurant work (e.g. Crain et al., 2017; Dane & Brummel, 2014; Irving et al., 2014). Studies that collected data from diverse industries tended to ignore the consequences of industrial factors that can potentially moderate the mindfulness/outcomes relationship. Some studies have found that the relationship between mindfulness and workplace outcomes is contingent on perceived

21

leader humility (Cheung et al., 2020), safety climate (Kao et al., 2019), and task complexity (Zhang et al., 2013). Potentially, the mindfulness and workplace outcome relationship is contingent on industrial features and a relationship which is significant in one industry might not be significant in others. For instance, mindfulness might be beneficial for academic staff and IT professionals where work-oriented attention is important for their creative performance. In contrast, mindfulness might be less relevant for employees who undertake repetitive tasks such as packaging food and working on an assembly line. Subsequent studies might thus consider not only individual personal characteristics (e.g. gender, ethnicity, education) but also industrial factors, organizational culture, organizational size and other contingent features when studying the relationship between workplace mindfulness and workplace outcomes.

To facilitate a more comprehensive understanding of relationships between workplace mindfulness and outcomes, researchers might also use mixed-method research approaches. Initially, qualitative interviews can be used to explore and identify the factors at the individual, group, organizational, industrial, and other levels that might facilitate the employees' mindfulness experiences, as well as the factors that mediate or moderate the relationship between mindfulness and workplace functions. Quantitative methods could then be employed to confirm and extend those relationships.

6. Conclusion

While research interest in workplace mindfulness is rapidly developing, little attention has been paid to the factors that influence its development and determine when and how it influences workplace outcomes. Yet an examination of these factors is important for developing an understanding of workplace mindfulness in organizational scholarship and practice. Earlier reviews do not present a comprehensive framework with which to synthesize

the antecedents of workplace mindfulness as well as the mediating mechanisms and boundary conditions of its relationship with workplace functions. This integrative literature review thus examined factors associated with workplace mindfulness in an endeavor to reduce key theoretical 'blind spots' in the organizational field. It enables the development of an initial framework of antecedents, mediators, and moderators related to workplace mindfulness, and thereby facilitates a more integrated and systematic understanding of the literature which can be used to inform future research endeavors.

References

Allen, T. D., Eby, L. T., Conley, K. M., Williamson, R. L., Mancini, V. S., & Mitchell, M. E. (2015). What do we really know about the effects of mindfulness-based training in the workplace? *Industrial and Organizational Psychology*, 8(4), 652-661.

Allen, T. D., Henderson, T. G., Mancini, V. S., & French, K. A. (2017). Mindfulness and meditation practice as moderators of the relationship between age and subjective wellbeing among working adults. *Mindfulness*, 8(4), 1055-1063.

*Allen, T. D., & Kiburz, K. M. (2012). Trait mindfulness and work–family balance among working parents: The mediating effects of vitality and sleep quality. *Journal of Vocational Behavior,* 80(2), 372-379.

Arrowsmith, J., & Parker, J. (2013). The meaning of 'employee engagement' for the values and roles of the HRM function. *The International Journal of Human Resource Management,* 24(14), 2692-2712.

Baer, R. A., Smith, G. T., Hopkins, J., Krietemeyer, J., & Toney, L. (2006). Using self report assessment methods to explore facets of mindfulness. *Assessment*, 13, 27–45.

Baer, R. A., Smith, G. T., Lykins, E., Button, D., Krietemeyer, J., Sauer, S., Walsh, E., Duggan, D., & Williams, J. M. G. (2008). Construct validity of the five facet

mindfulness questionnaire in meditating and nonmeditating samples. *Assessment,* 15(3), 329-342.

Baer, R. A., Walsh, E., & Lykins, E. L. B. (2009). Assessment of mindfulness. In Didonna, F. (Eds.), *Clinical Handbook of Mindfulness* (pp. 153-168). Springer New York.

Bergomi, C., Tschacher, W., & Kupper, Z. (2013). The Assessment of mindfulness with self-report measures: Existing scales and open issues. *Mindfulness,* 4(3), 191-202.

Bishop, S. R., Lau, M., Shapiro, S., Carlson, L., Anderson, N. D., Carmody, J., Segal, Z. V., Abbey, S., Speca, M., Velting, D., & Devins, G. (2004). Mindfulness: A proposed operational definition. *Clinical Psychology: Science and Practice*, 11(3), 230-241.

Bodhi, B. (2011). What does mindfulness really mean? A canonical perspective. *Contemporary Buddhism,* 12(1), 19-39.

Bohlmeijer, E., Ten Klooster, P. M., Fledderus, M., Veehof, M., & Baer, R. (2011). Psychometric properties of the five facet mindfulness questionnaire in depressed adults and development of a short form. *Assessment*, 18(3), 308–320.

Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: Mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology,* 84(4), 822-848.

Buchheld, N., Grossman, P., & Walach, H. (2001). Measuring mindfulness in insight meditation (Vipassana) and meditation-based psychotherapy: The development of the freiburg mindfulness inventory (FMI). *Journal for Meditation and Meditation Research,* 1(1), 11-34.

Byrne, E. K., & Thatchenkery, T. (2019). Cultivating creative workplaces through mindfulness. *Journal of Organizational Change Management,* 32(1),15-31.

Cardaciotto, L., Herbert, J. D., Forman, E. M., Moitra, E., & Farrow, V. (2008). The assessment of present-moment awareness and acceptance. *Assessment,* 15(2), 204-223.

*Chen, Z., Allen, T. D., Hou, L. (2020). Mindfulness, empathetic concern, and work-family outcomes: A dyadic analysis. *Journal of Vocational Behavior.* DOI: 10.1016/j.jvb.2020.103402

*Cheung, S. Y., Huang, E. G., Chang, S., & Wei, L. (2020). Does being mindful make people more creative at work? The role of creative process engagement and perceived leader humility. *Organizational Behavior and Human Decision Processes,* 159, 39-48.

Chiesa, A. (2013). The difficulty of defining mindfulness: Current thought and critical issues. *Mindfulness,* 4(3), 255-268.

Cigolla, F., & Brown, D. (2011). A way of being: Bringing mindfulness into individual therapy. *Psychotherapy Research,* 21(6), 709-721.

*Crain, T. L., Schonert-Reichl, K. A., & Roeser, R. W. (2017). Cultivating teacher mindfulness: Effects of a randomized controlled trial on work, home, and sleep outcomes. *Journal of Occupational Health Psychology*, 22(2), 138-152.

Dane, E. (2011). Paying attention to mindfulness and its effects on task performance in the workplace. *Journal of Management,* 37(4), 997-1018.

*Dane, E., & Brummel, B. J. (2014). Examining workplace mindfulness and its relations to job performance and turnover intention. *Human Relations,* 67(1), 105-128.

Eby, L. T., Allen, T. D., Conley, K. M., Williamson, R. L., Henderson, T. G., & Mancini, V. S. (2019). Mindfulness-based training interventions for employees: A qualitative review of the literature. *Human Resource Management Review,* 29(2), 156-178.

*Forjan, D. N., Tuckey, M. R., & Li, Y. (2020). Problem solving and affect as mechanisms linking daily mindfulness to task performance and job satisfaction. *Stress and Health.* 36(3), 338-349.

Fresco, D. M., Moore, M. T., Van Dulmen, M. H., Segal, Z. V., Ma, S. H., Teasdale, J. D., & Williams, J. M. G. (2007). Initial psychometric properties of the experiences questionnaire: Validation of a self-report measure of decentering. *Behavior Therapy*, 38(3), 234-246.

Glomb, T. M., Duffy, M. K., Bono, J. E., & Yang, T. (2011). Mindfulness at work. *Research in Personnel and Human Resources Management,* 30, 115-157.

Good, D. J., Lyddy, C. J., Glomb, T. M., Bono, J. E., Brown, K. W., Duffy, M. K., Baer, R. A., Brewer, J. A., & Lazar, S. W. (2016). Contemplating mindfulness at work: An integrative review. *Journal of Management,* 42(1), 114-142.

Grossman, P. (2011). Defining mindfulness by how poorly I think I pay attention during everyday awareness and other intractable problems for psychology's (re)invention of mindfulness: Comment on Brown et al. (2011). *Psychological Assessment*, 23(4), 1034-1040.

*Hafenbrack, A. C., Cameron, L. D., Spreitzer, G. M., Zhang, C., Noval, L. J., & Shaffakat, S. (2020). Helping people by being in the present: Mindfulness increases prosocial behavior. *Organizational Behavior and Human Decision Processes,* 159, 21-38.

*Hafenbrack, A. C., & Vohs, K. D. (2018). Mindfulness meditation impairs task motivation but not performance. *Organizational Behavior and Human Decision Processes,* 147, 1-15.

*Hawkes, A. J., & Neale, C. M. (2020). Mindfulness beyond wellbeing: Emotion regulation and team-member exchange in the workplace. *Australian Journal of Psychology*, 72(1), 20-30.

Hobfoll, S. E. (1989). Conservation of resources: A new attempt at conceptualizing stress. *American Psychologist*, 44, 513–524.

*Hulsheger, U. R., Alberts, H. J., Feinholdt, A., & Lang, J. W. (2012). Benefits of mindfulness at work: The role of mindfulness in emotion regulation, emotional exhaustion, and job satisfaction. *Journal of Applied Psychology,* 98(2), 310-325.

*Hulsheger, U. R., Lang, J. W., Depenbrock, F., Fehrmann, C., Zijlstra, F. R., & Alberts, H. J. (2014). The power of presence: The role of mindfulness at work for daily levels and change trajectories of psychological detachment and sleep quality. *Journal of Applied Psychology,* 99(6), 1113-1128.

*Hulsheger, U. R., Walkowiak, A., & Thommes, M. S. (2018). How can mindfulness be promoted? Workload and recovery experiences as antecedents of daily fluctuations in mindfulness. *Journal of Occupational and Organizational Psychology,* 91(2), 261-284.

*Irving, J. A., Park-Saltzman, J., Fitzpatrick, M., Dobkin, P. L., Chen, A., & Hutchinson, T. (2014). Experiences of health care professionals enrolled in mindfulness-based medical practice: A grounded theory model. *Mindfulness,* 5(1), 60-71.

Jamieson, S. D., & Tuckey, M. R. (2017). Mindfulness interventions in the workplace: A critique of the current state of the literature. *Journal of Occupational Health* Psychology, 22(2), 180-193.

Johns, G. (2018). Advances in the treatment of context in organizational research. *Annual Review of Organizational Psychology and Organizational Behavior*, 5, 21-46.

Johns, G. (1993). Constraints on the adoption of psychology-based personnel practices: Lessons from organizational innovation. *Personnel Psychology*, 46(3), 569-592.

Johns, G. (2006). The essential impact of context on organizational behavior. *Academy of Management Review*, 31(2), 386-408.

Johnson, K. R., Park, S., & Chaudhuri, S. (2020). Mindfulness training in the workplace: Exploring its scope and outcomes. *European Journal of Training and Development,* 44(4/5), 341-354.

Kabat-Zinn. (2003). Mindfulness-based interventions in context: Past, present, and future. *Clinical Psychology: Science and Practice,* 10(2), 144-156.

Kabat-Zinn. (2009). *Wherever you go, there you are: Mindfulness meditation in everyday life,* Hachette Books, New York.

*Kalafatoglu, Y., & Turgut, T. (2019). Individual and organizational antecedents of trait mindfulness. *Journal of Management, Spirituality & Religion,* 16(2), 199-220.

*Kao, K. Y., Thomas, C. L., Spitzmueller, C., & Huang, Y. H. (2019). Being present in enhancing safety: Examining the effects of workplace mindfulness, safety behaviors, and safety climate on safety outcomes. *Journal of Business and Psychology*, DOI: 10.1007/s10869-019-09658-3.

*Kay, A. A., & Skarlicki, D. P. (2020). Cultivating a conflict-positive workplace: How mindfulness facilitates constructive conflict management. *Organizational Behavior and Human Decision Processes*, 159, 8-20.

Khoury, B., Knäuper, B., Pagnini, F., Trent, N., Chiesa, A., & Carrière, K. (2017). Embodied mindfulness. *Mindfulness*, 8(5), 1160-1171.

*King, E., & Haar, J. M. (2017). Mindfulness and job performance: A study of Australian leaders. *Asia Pacific Journal of Human Resources*, 55(3), 298-319.

Lau, M. A., Bishop, S. R., Segal, Z. V., Buis, T., Anderson, N. D., Carlson, L., Shapiro, S., Carmody, J., Abbey, S., & Devins, G. (2006). The Toronto mindfulness scale: Development and validation. *Journal of Clinical Psychology*, 62(12), 1445–1467.

*Lawrie, E. J., Tuckey, M. R., & Dollard, M. F. (2018). Job design for mindful work: The boosting effect of psychosocial safety climate. *Journal of Occupational Health Psychology*, 23(4), 483-495.

* Liu, S., Xin, H., Shen, L., He1, J., & Liu, J. (2020). The influence of individual and team mindfulness on work engagement. *Frontiers in Psychology, 10*, 2928.

*Lyddy, C. J., & Good, D. J. (2017). Being while doing: An inductive model of mindfulness at work. *Frontiers in Psychology, 7*, 2060.

*Lyddy, C. J., Schachter, Y., Reyer, A., & Julliard, K. (2016). Transfer of mindfulness training to the work setting: A qualitative study in a health care system. *Journal of Continuing Education in the Health Professions, 36*(4), 240-248.

Luthans, F. (2002). Positive organizational behavior: Developing and managing psychological strengths. *Academy of Management Perspectives*, 16(1), 57-72.

Luthans, F., Youssef, C. M., & Avolio, B. J. (2015). *Psychological capital and beyond.* Oxford University Press, USA.

Malarkey, W. B., Jarjoura, D., & Klatt, M. (2013). Workplace based mindfulness practice and inflammation: A randomized trial. *Brain, Behavior, and Immunity*, 27, 145-154.

*Malinowski, P., & Lim, H. J. (2015). Mindfulness at work: Positive affect, hope, and optimism mediate the relationship between dispositional mindfulness, work engagement, and well-being. *Mindfulness*, 6(6), 1250-1262.

Mathieu, J. E., DeShon, R. P., & Bergh, D. D. (2008). Mediational inferences in organizational research: Then, now, and beyond. *Organizational Research Methods*, 11(2), 203-223.

Maxwell, S. E., & Cole, D. A. (2007). Bias in cross-sectional analyses of longitudinal mediation. *Psychological Methods*, 12(1), 23-44.

Michel, A., Bosch, C., & Rexroth, M. (2014). Mindfulness as a cognitive emotional segmentation strategy: An intervention promoting work–life balance. *Journal of Occupational and Organizational Psychology,* 87(4), 733-754.

*Mitmansgruber, H., Beck, T. N., & Schubler, G. (2008). Mindful helpers: Experiential avoidance, meta-emotions, and emotion regulation in paramedics. *Journal of Research in Personality,* 42, 1358–1363.

Montani, F., Vandenberghe, C., Khedhaouria, A., & Courcy, F. (2020). Examining the inverted u-shaped relationship between workload and innovative work behavior: The role of work engagement and mindfulness. *Human Relations,* 73(1), 59-93.

Morgeson, F. P., Mitchell, T. R., & Liu, D. (2015). Event system theory: An event-oriented approach to the organizational sciences. *Academy of Management Review*, 40(4), 515-537.

Niemiec, R. M. (2014). *Mindfulness and character strengths: A practical guide to flourishing*. Hogrefe Publishing, Boston.

*Pang, D., & Ruch, W. (2019). Fusing character strengths and mindfulness interventions: Benefits for job satisfaction and performance. *Journal of Occupational Health Psychology*, 24(1), 150-162.

Qiu, J. X., & Rooney, D. (2017). Addressing unintended ethical challenges of workplace mindfulness: A four-stage mindfulness development model. *Journal of Business Ethics*, 1-16.

Reb, J., Allen, T. D., & Vogus, T. J. (2020). Mindfulness arrives at work: Deepening our understanding of mindfulness in organizations. *Organizational Behavior and Human Decision Processes,* 159, 1-7.
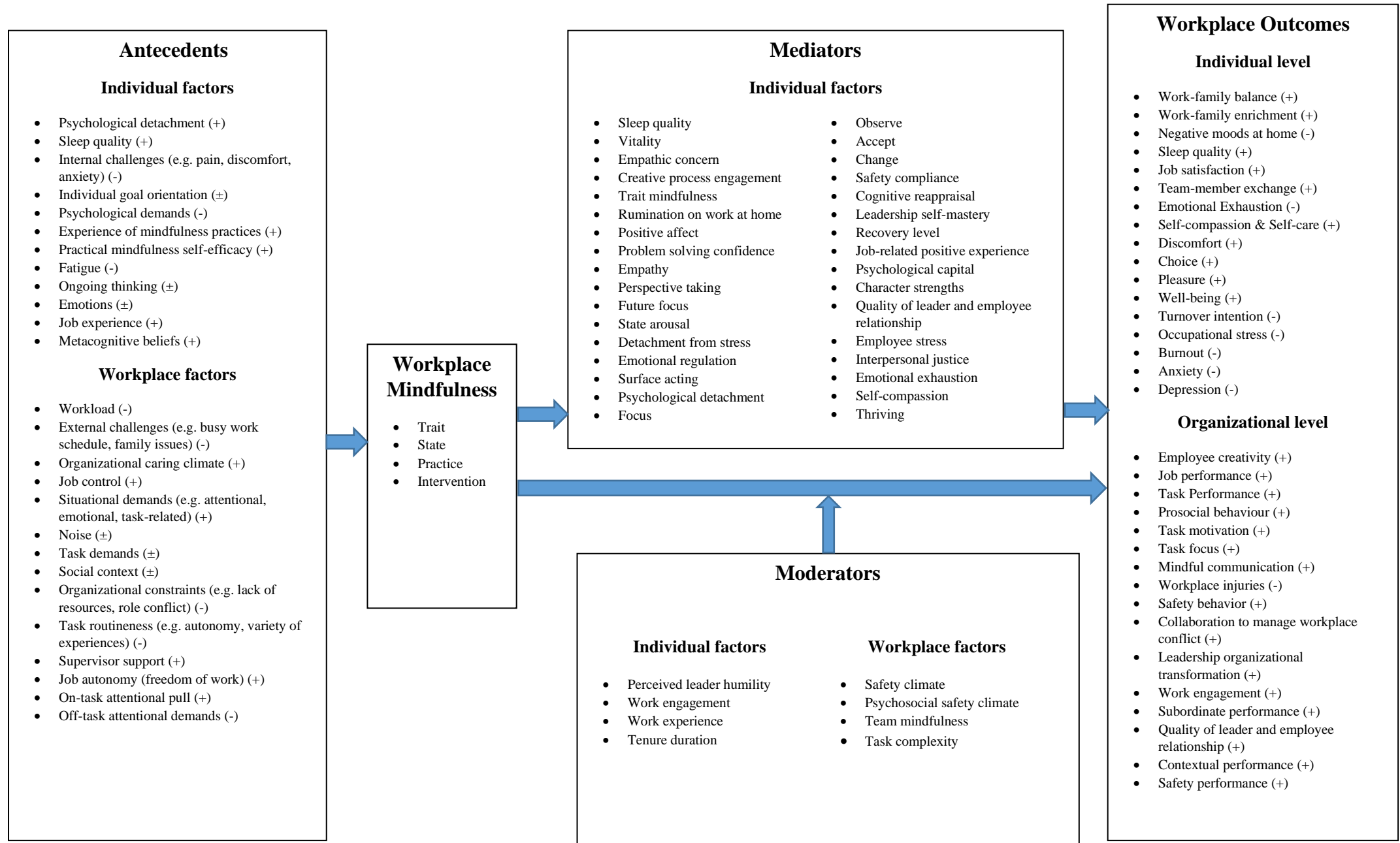
*Reb, J., Chaturvedi, S., Narayanan, J., & Kudesia, R. S. (2019). Leader mindfulness and employee performance: A sequential mediation model of LMX quality, interpersonal justice, and employee stress. *Journal of Business Ethics*, 160(3), 745-763.

*Reb, J., Narayanan, J., Chaturvedi, S., & Ekkirala, S. (2017). The mediating role of emotional exhaustion in the relationship of mindfulness with turnover intentions and job performance. *Mindfulness,* 8(3), 707-716.

*Reb, J., Narayanan, J., & Ho, Z. W. (2015). Mindfulness at work: Antecedents and consequences of employee awareness and absent-mindedness. *Mindfulness,* 6(1), 111-122.

*Reina, C. S., & Kudesia, R. S. (2020). Wherever you go, there you become: How mindfulness arises in everyday situations. *Organizational Behavior and Human Decision Processes,* 159, 78-96.

Roche, M., & Haar, J.M. (2019). Adding mindfulness to psychological capital: A two study investigation into why mindfulness matters. In 79th *Annual Meeting of the Academy of Management* (34 pages). Boston, USA.

*Roche, M., Haar, J. M., & Luthans, F. (2014). The role of mindfulness and psychological capital on the well-being of leaders. *Journal of Occupational Health Psychology,* 19(4), 476-489.

*Roeser, R. W., Schonert-Reichl, K. A., Jha, A., Cullen, M., Wallace, L., Wilensky, R., Oberle, E., Thomson, K., Taylor, C., & Harrison, J. (2013). Mindfulness training and reductions in teacher stress and burnout: Results from two randomized, waitlist-control field trials. *Journal of Educational Psychology,* 105(3), 787-804.

Sajjad, A., & Shahbaz, W. (2020). Mindfulness and social sustainability: An integrative review. *Social Indicators Research*, 150(1), 73-94.

*Sahin, S., Ozcan, N. A., & Babal, R. A. (2020). The mediating role of thriving: Mindfulness and contextual performance among Turkish nurses. *Journal of Nursing Management*, 28(1), 175-184.

Segal, Z., Williams, M. R., & Teasdale, J. (2002). *Mindfulness-based cognitive therapy for depression: A new approach to preventing relapse.* Guilford Press, New York.

Shonin, E., Van Gordon, W., Dunn, T. J., Singh, N. N., & Griffiths, M. D. (2014). Meditation awareness training (MAT) for work-related wellbeing and job performance: A randomised controlled trial. *International Journal of Mental Health and Addiction,* 12(6), 806-823.

Sutcliffe, K. M., Vogus, T. J., & Dane, E. (2016). Mindfulness in organizations: A cross-level review. *Annual Review of Organizational Psychology and Organizational Behavior,* 3, 55-81.

Tett, R. P., & Burnett, D. D. (2003). A personality trait-based interactionist model of job performance. *Journal of Applied Psychology,* 88(3), 500–517

Torraco, R. J. (2005). Writing integrative literature reviews: Guidelines and examples. *Human Resource Development Review,* 4(3), 356-367.

Van Gordon, W., Shonin, E., & Richardson, M. (2018). Mindfulness and nature. *Mindfulness,* 9(5), 1655-1658.

Vogus, T. J., & Sutcliffe, K. M. (2012). Organizational mindfulness and mindful organizing: A reconciliation and path forward. *Academy of Management Learning & Education*, 11(4), 722-735.

Walach, H., Buchheld, N., Buttenmuller, V., Kleinknecht, N., & Schmidt, S. (2006). Measuring mindfulness—the freiburg mindfulness inventory (FMI). *Personality and Individual Differences,* 40(8), 1,543-1,555.

Williams, J. M. G., & Kabat-Zinn, J. (2013). *Mindfulness: Diverse perspectives on its meaning, origins and applications*: Routledge, New York.

Wolever, R. Q., Bobinet, K. J., McCabe, K., Mackenzie, E. R., Fekete, E., Kusnick, C. A., & Baime, M. (2012). Effective and viable mind-body stress reduction in the workplace: A randomized controlled trial. *Journal of Occupational Health Psychology*, 17(2), 246-258.

*Zhang, J., Ding, W., Li, Y., & Wu, C. (2013). Task complexity matters: The influence of trait mindfulness on task and safety performance of nuclear power plant operators. *Personality and Individual Differences,* 55(4), 433-439.

Fig. 1. An integrated framework of antecedents, mediators, moderators, and outcomes related to workplace mindfulness

Antecedents

Individual factors

- Psychological detachment (+)
- Sleep quality (+)
- Internal challenges (e.g. pain, discomfort, anxiety) (-)
- Individual goal orientation (±)
- Psychological demands (-)
- Experience of mindfulness practices (+)
- Practical mindfulness self-efficacy (+)
- Fatigue (-)
- Ongoing thinking (±)
- Emotions (±)
- Job experience (+)
- Metacognitive beliefs (+)

Workplace factors

- Workload (-)
- External challenges (e.g. busy work schedule, family issues) (-)
- Organizational caring climate (+)
- Job control (+)
- Situational demands (e.g. attentional, emotional, task-related) (+)
- Noise (±)
- Task demands (±)
- Social context (±)
- Organizational constraints (e.g. lack of resources, role conflict) (-)
- Task routineness (e.g. autonomy, variety of experiences) (-)
- Supervisor support (+)
- Job autonomy (freedom of work) (+)
- On-task attentional pull (+)
- Off-task attentional demands (-)

Workplace Mindfulness

- Trait
- State
- Practice
- Intervention

Mediators

Individual factors

- Sleep quality
- Vitality
- Empathic concern
- Creative process engagement
- Trait mindfulness
- Rumination on work at home
- Positive affect
- Problem solving confidence
- Empathy
- Perspective taking
- Future focus
- State arousal
- Detachment from stress
- Emotional regulation
- Surface acting
- Psychological detachment
- Focus
- Observe
- Accept
- Change
- Safety compliance
- Cognitive reappraisal
- Leadership self-mastery
- Recovery level
- Job-related positive experience
- Psychological capital
- Character strengths
- Quality of leader and employee relationship
- Employee stress
- Interpersonal justice
- Emotional exhaustion
- Self-compassion
- Thriving

Moderators

Individual factors

- Perceived leader humility
- Work engagement
- Work experience
- Tenure duration

Workplace factors

- Safety climate
- Psychosocial safety climate
- Team mindfulness
- Task complexity

Workplace Outcomes

Individual level

- Work-family balance (+)
- Work-family enrichment (+)
- Negative moods at home (-)
- Sleep quality (+)
- Job satisfaction (+)
- Team-member exchange (+)
- Emotional Exhaustion (-)
- Self-compassion & Self-care (+)
- Discomfort (+)
- Choice (+)
- Pleasure (+)
- Well-being (+)
- Turnover intention (-)
- Occupational stress (-)
- Burnout (-)
- Anxiety (-)
- Depression (-)

Organizational level

- Employee creativity (+)
- Job performance (+)
- Task Performance (+)
- Prosocial behaviour (+)
- Task motivation (+)
- Task focus (+)
- Mindful communication (+)
- Workplace injuries (-)
- Safety behavior (+)
- Collaboration to manage workplace conflict (+)
- Leadership organizational transformation (+)
- Work engagement (+)
- Subordinate performance (+)
- Quality of leader and employee relationship (+)
- Contextual performance (+)
- Safety performance (+)

Table 1

Key features of studies selected for review

No	Author (year)	Sample	Research design	Sequential and/or multi-level model	Intervention	Tool
1	Allen and Kiburz (2012)	131 working parents	Self-reported online survey	-	-	MAAS
2	Chen et al. (2020)	105 dual-career couples in eastern China	2 waves of data collection 1 month apart	Multilevel mediation model	-	MAAS
3	Cheung et al. (2020)	280 employees from an automobile company and 282 employees from manufacturing companies in China	• 2 independent surveys • Data collected at baseline, after 1 month, and after 2 months	Sequential mediation and moderation model	-	MAAS
4	Crain et al. (2017)	113 school teachers in USA and Canada	• Randomized waitlist-controlled trials design • Data collected at baseline, post-program, and 3-month follow-up	-	Modified version of MBSR	FFMQ
5	Dane and Brummel (2014)	113 restaurant employees in USA	15 interviews and 102 questionnaire-based responses (Mixed method)	-	-	Interviews / MAAS
6	Forjan et al. (2020)	57 Australian employees	Self-reported baseline survey and then a diary entry each day straight after work for 5 workdays (within a 2-week period)	Multilevel mediation model	-	MAAS
7	Hafenbrack et al. (2020)	139 professionals in USA	An experiment using mindfulness practice manipulation and control conditions comparison	-	Short mindfulness practices adopted from MBSR and MBCT	TMS
8	Hafenbrack and Vohs (2018)	645 general public and workers in USA and France	5 experiments using mindfulness practice manipulation and mind-wandering conditions comparison	-	Short mindfulness practices	Customized

9	Hawkes and Neale (2020)	496 organizational workers	Self-reported survey	-	-	MAAS
10	Hulsheger et al. (2012)	283 professionals in Netherland/Belgium	• Study 1 conducted a 5-day daily diary survey with 219 employees • Study 2 comprised 64 participants, used randomized waitlist-controlled trials design	-	Modified version of MBCT and MBSR	MAAS
11	Hulsheger et al. (2014)	121 professionals in Germany	Self-reported survey design involved 3 daily entries (morning, end of work, and bedtime) over 5 workdays	-	-	MAAS
12	Hulsheger et al. (2018)	168 professionals in Germany	Self-reported survey design involved 3 daily entries (morning, end of work, and bedtime) over 5 workdays	-	-	MAAS
13	Irving et al. (2014)	27 healthcare professionals	6 focus group interviews of 90 minutes with each group (3 to 6 training participants per group)	-	Modified version of MBSR	Interviews
14	Kalafatoglu and Turgut (2019)	302 professionals from the service sector in Istanbul	Self-reported survey	-	-	FMI
15	Kao et al. (2019)	706 employees from the petroleum distribution industry in USA	Self-reported survey	Sequential mediation and moderation model	-	MAAS
16	Kay and Skarlicki (2020)	1006 professionals in USA and 501 healthcare professionals	• Study 1 involved a self-reported survey • Study 2 involved randomized waitlist-controlled trials design • 30 days of online mindfulness training	-	Modified version of MBSR	FFMQ
17	King and Haar (2017)	84 leaders from engineering firms in Australia	Self-reported survey	Sequential mediation and moderation model	-	MAAS
18	Lawrie et al. (2018)	57 service sector (healthcare,	Self-reported daily diary survey for 5	Sequential	-	MAAS

		education, and finance) employees	days within a 2-week period	mediation and moderation model		
19	Liu et al. (2020)	311 employees (83 teams) from the service sector in eastern China	Self-reported survey at baseline, after 3 months, and after 6 months	-	-	MAAS
20	Lyddy and Good (2017)	39 professionals (such as doctors, therapists, managers, lawyers, analysts and entrepreneurs)	Semi-structured interviews of 30 - 150 minutes with professionals having mindfulness experiences	-	-	Interviews
21	Lyddy et al. (2016)	25 healthcare professionals	Semi-structured interviews of 30 - 90 minutes	-	Modified version of MBSR	Interviews
22	Malinowski and Lim (2015)	299 organizational employees and self-employed people	Self-reported online survey	Multilevel and sequential mediation model	-	FFMQ
23	Mitmansgruber et al. (2008)	239 paramedical staff	• Self-reported survey • Comparison of experienced and novice staff	-	-	MAAS
24	Pang and Ruch (2019)	63 general employees	• Randomized waitlist-controlled trials design • Data collected before and after the intervention, and 1, 3, and 6 months afterward	-	Modified version of MBSR and MBSP	-
25	Reb et al. (2019)	76 triads and 227 dyads of workers in Singapore	• Study 1 involved triadic leader-employee-peer survey • Study 2 involved dyadic leader-employee survey	Multilevel and sequential mediation model	-	MAAS
26	Reb et al. (2017)	251 call center employees and 572 professionals in India	2 self-reported surveys	-	-	MAAS

27	Reb et al. (2015)	231 professionals	• Self-reported online surveys with 5 sets of samples • Data collected at 3 different times with approximately 2 weeks gap between subsequent data collection time	-	-	FFMQ
28	Reina and Kudesia (2020)	558 employees and students	3 self-reported surveys	-	-	MAAS/EQ
29	Roche et al. (2014)	697 professionals	Self-reported survey	-	-	MAAS
30	Roeser et al. (2013)	113 school teachers	• Randomized waitlist-controlled trials design • Data collected at baseline, post-program, and 3-month follow-up	-	Modified version of MBSR	FFMQ
31	Sahin et al. (2020)	398 hospital nurses in Turkey	Self-reported survey	-	-	MAAS
32	Zhang et al. (2013)	136 Chinese nuclear power plant workers	Self-reported survey	-	-	FMI

MAAS: Mindfulness Attention Awareness Scale (MAAS; Brown & Ryan, 2003)

FMI: Freiburg Mindfulness Inventory (FMI; Buchheld et al., 2001; Walach et al., 2006).

FFMQ: Five-Factor Mindfulness Questionnaire (FFMQ; Baer et al., 2006; Baer et al., 2008; Bohlmeijer et al., 2011)

TMS: Toronto Mindfulness Scale (TMS; Lau et al., 2006)

EQ: Experiences questionnaire (Fresco et al., 2007)

Triad: A group of leader, peer, and employee (with at least one member)

Dyad: A group of leader and employee (with at least one member)

Customized tool/scale: Scale to measure awareness of physical sensations and present moment focus.

MBSP: Mindfulness-based strengths practice (Niemiec, 2014).

MBCT: Mindfulness-based cognitive therapy (Segal et al., 2002)

Mindfulness practice: Mind-body exercises such as mindful breathing exercise and mindful feelings of love and kindness exercise

Table 2
Antecedents, mediators, moderators, and outcomes related to workplace mindfulness

No	Study	Antecedents	Mindfulness	Mediators	Moderators	Outcomes
1	Allen and Kiburz (2012)		Trait mindfulness	• Sleep quality (sufficiency) • Vitality (liveliness)		• Work-family balance (+)
2	Chen et al. (2020)		Trait/State mindfulness	• Empathic concern		• Spouse's work-family enrichment (+) • Spouse's work-family balance (+)
3	Cheung et al. (2020)		Trait/State mindfulness	• Creative process engagement	• Perceived leader humility	• Employee creativity (+)
4	Crain et al. (2017)		Mindfulness intervention	• Trait mindfulness • Rumination on work at home		• Negative moods at home (-) • Sleep quality (+)
5	Dane and Brummel (2014)		Trait/State mindfulness		• Work engagement • Work experience	• Job performance (+)
6	Forjan et al. (2020)		State mindfulness	• Positive affect • Problem solving confidence		• Task performance (+) • Job satisfaction (+)
7	Hafenbrack et al. (2020)		Mindfulness intervention	• Empathy • Perspective taking		• Prosocial behaviour (+)
8	Hafenbrack and Vohs (2018)		Mindfulness intervention	• Future focus • State arousal • Detachment from stress		• Task motivation (+) • Task focus (+)
9	Hawkes and		Trait mindfulness	• Emotional regulation		• Team-member exchange

	Neale (2020)					(+)
10	Hulsheger et al. (2012)		Trait/State mindfulness/ Mindfulness intervention	• Surface acting (emotional regulation strategy)		• Emotional exhaustion (-) • Job satisfaction (+)
11	Hulsheger et al. (2014)		Trait/State mindfulness	• Psychological detachment		• Sleep quality (+)
12	Hulsheger et al. (2018)	• Workload (-) • Psychological detachment (+) • Sleep quality (+)	State mindfulness			
13	Irving et al. (2014)	• Internal challenges (such as pain, discomfort, anxiety) (-) • External challenges (such as busy work schedule and family issues) (-)	State mindfulness/Mindfulness practices/Mindfulness intervention	• Focus • Observe • Accept • Change		• Mindful communication (+) • Self-compassion & self-care (+) • Discomfort (+) • Choice (+) • Pleasure (+)
14	Kalafatoglu and Turgut (2019)	• Organizational caring climate (+) • Individual goal orientation (±)	Trait mindfulness			
15	Kao et al. (2019)		Trait mindfulness	Safety compliance	Safety climate	• Workplace injuries (-) • Safety behavior (+)

16	Kay and Skarlicki (2020)		Trait mindfulness/ Mindfulness intervention	Cognitive reappraisal		Collaboration to manage workplace conflict (+)
17	King and Haar (2017)		Trait mindfulness	Leadership self-mastery	Tenure duration	Leadership organizational-transformation (+)
18	Lawrie et al. (2018)	• Psychological demands (-) • Job control (+)	Trait/State mindfulness		Psychosocial safety climate	
19	Liu et al. (2020)		Trait mindfulness	Recovery level	Team mindfulness	Work engagement (+)
20	Lyddy and Good (2017)	• Situational demands (attentional, emotional, and task-related) (+) • Experience of mindfulness practices (+) • Practical mindfulness self-efficacy (+)	State mindfulness			

21	Lyddy et al. (2016)	• Noise (±) • Task demands (±) • Social context (±) • Fatigue (-) • Ongoing thinking (±) • Emotions (±)	Mindfulness practices			
22	Malinowski and Lim (2015)		Trait mindfulness	• Job-related positive experience • Hope • Optimism		• Work engagement (+) • Well-being (+)
23	Mitmansgruber et al. (2008)	Job experience (+)	Trait/State mindfulness			
24	Pang and Ruch (2019)		Mindfulness intervention	• Character strengths		• Job satisfaction (+) • Task performance (+)
25	Reb et al. (2019)		Trait mindfulness	• Quality of leader and employee relationship • Employee stress • Interpersonal justice		• Subordinate performance (+) • Quality of leader and employee relationship (+)

26	Reb et al. (2017)		Trait mindfulness	Emotional exhaustion		• Task performance (+) • Turnover intention (-)
27	Reb et al. (2015)	• Organizational constraints (such as lack of resources and role conflict) (-) • Task routineness (autonomy and variety of experiences) (-) • Supervisor support (+) • Job autonomy (freedom of work) (+)	Trait/State mindfulness			
28	Reina and Kudesia (2020)	• Metacognitive beliefs (+) • On-task attentional pull (+) • Off-task attentional demands (-)	State mindfulness			
29	Roche et al. (2014)		Trait/State mindfulness	• Psychological capital (hope, self-efficacy, resilience, and optimism)		• Well-being (Anxiety, depression, and negative affect of the managerial leaders and burnout) (+)

30	Roeser et al. (2013)		Mindfulness intervention	• Trait mindfulness • Self-compassion		• Occupational stress (-) • Burnout (-) • Anxiety (-) • Depression (-)
31	Sahin et al. (2020)		Trait/State mindfulness	• Thriving		• Contextual performance (+)
32	Zhang et al. (2013)		Trait mindfulness		• Task complexity (low vs high)	• Task Performance (efficiency) (+) • Safety performance (accuracy) (+)