Check for updates

Journal of Organizational Behavior

WILEY

Journal of Organizational Behavior

POINT-COUNTERPOINT

Mindfulness at Work: How Strong Is the Scientific Evidence?

Gwendolin B. Sajons[1] | John Antonakis[2]

[1]ESCP Business School, Berlin, Germany | [2]Faculty of Business and Economics (HEC Lausanne), University of Lausanne, Lausanne, Switzerland

Correspondence: Gwendolin B. Sajons (gsajons@escp.eu) | John Antonakis (John.Antonakis@unil.ch)

Received: 1 June 2026 | **Revised:** 1 June 2026 | **Accepted:** 4 June 2026

ABSTRACT

Are there benefits of mindfulness in the workplace? The answer is unclear. In this Point article, we argue that practice may be running ahead of robust scientific evidence. We highlight six systematic design and estimation challenges studies in the fields of management and applied psychology face: (1) Current survey studies are ill suited to inform policy because they do not employ designs that allow identifying causal effects. (2) The procedures used to explore *how* mindfulness may affect outcomes (i.e., mediating mechanisms) are inadequate for theory testing. (3) The majority of studies rely on self-report data instead of testing the effect of mindfulness on objective outcomes. (4) Intervention studies, typically considered the gold standard for causal evidence, often rely on self-selected employee samples, and (5) these studies also frequently use weak counterfactuals. (6) Finally, mindfulness reviews tend to be based on primary studies with clear methodological limitations, and methodological critiques are largely not reflected in research practice. We provide concrete recommendations for each of these issues and, where possible, highlight positive examples from the literature. We hope that these recommendations will inform future research and ultimately help organizations make better-grounded choices among competing interventions to foster employee health and well-being.

Are scientific findings on mindfulness in work contexts informative? The answer has important practical implications given the "buzz" and media coverage surrounding the field (Van Dam et al. 2018). Companies like Google, Nike, and Apple offer mindfulness interventions for their employees (Levin 2017). We know of individuals who have attended mindfulness courses; in our executive teaching, we hear too of participants taking such courses. The concept seems legitimized and ingrained in companies and executive education.

Whereas efforts to increase employee well-being are highly welcomed, our impressions of the state of the field suggest that mindfulness practice may antedate scientific evidence. Basically put, organizational uptake appears to be outpacing robust causal knowledge. In rapidly expanding fields, enthusiasm for a construct can sometimes narrow attention toward demonstrating positive effects rather than cautiously examining its effectiveness through strong counterfactual designs—a core tenet of science. Of course, employee health and well-being, from the shop floor to the corner office, matters. We are thus supportive of efforts that have demonstrated effects on such outcomes. However, hunches must be tested against strong alternatives. As mentioned by Tavris and Aronson (2007, 108) "the scientific method consists of the use of procedures designed to show not that our predictions and hypotheses are right, but that they might be wrong." Only after sustained efforts to critically test and potentially reject our hypotheses can we tentatively accept them (Popper 1989).

In this Point article, we highlight key methodological challenges that we believe research about mindfulness in the workplace faces and needs to overcome to provide robust scientific evidence sufficient to confidently inform policy (Vermeulen 2005). We summarize these recommendations in Table 1. As

We would like to thank Amela Dalipaj and Laetitia Ouedraogo for their excellent research assistance.

© 2026 John Wiley & Sons Ltd.

TABLE 1 | Six methodological challenges in the rigorous evaluation of mindfulness (intervention) effects and actionable recommendations.

Commonly observed practice	Consequence	Recommendations	Examples of common practice	Examples of recommended practice
(1) Correlational survey studies without causal identification strategies	Derivation of meaningful policy implications is not possible.	- Avoid conducting correlational survey studies or use them only sparingly in triangulation with *clean* experimental designs - At a minimum (to avoid some major possible confounds) control for IQ, trait affect, and the Big Five personality traits (see also Good et al. 2016) - When possible, use quasi-experimental techniques like D-i-D, RDD, or IV, or fixed effects/panel (Antonakis et al. 2021) models to estimate the effect of mindfulness based on observational (including survey) data (Sajons 2020; Sieweke and Santoni 2020; Wulff et al. 2023) - Throughout the manuscript, including the discussion and conclusion sections, be transparent about the non-causal nature of the results and avoid implying unwarranted policy recommendations	Chen et al. 2020; Dust et al. 2022; Hülsheger et al. 2014	No example identified
(2) Testing mediation via statistical techniques that do not support inferences about causal chains	Test of process theories is not possible.	- Use methods of causal identification (e.g., direct manipulation of the mediator or experimentally randomized instrumental variable estimation) to get closer to a causal effect of the proposed mediators. Be aware of the underlying assumptions behind each technique and ideally conduct a cumulative set of studies (Bullock et al. 2010; Fischer et al. 2017; Sajons 2020)	Allen and Kiburz 2012; Crain et al. 2017; Long and Christian 2015; Sawyer et al. 2022	No example identified[a]
(3) Focusing on survey-based outcome measures	Typical limitations of questionnaires such as the risk of abstraction, measurement error, confounded variance, and socially desirable responding (Fischer et al. 2020, 2023)	- Ideally collect measures that are objectively observable—especially for behaviors and physiological reactions (Davidson and Kaszniak 2015; Jamieson and Tuckey 2017; Urrila 2022)	Crain et al. 2017; Dust et al. 2022; Leroy et al. 2013; Roche et al. 2014	Krick and Felfe 2020; Long and Christian 2015; Wolever et al. 2012
(4) Using self-selected study samples	Unclear whether treatment effects generalize to the broader population of interest	- Obtain a representative sample of the population of interest (e.g., firm employees) (Janssen et al. 2018) - Restrict inferences to the sampled population	Hülsheger et al. 2013; Long and Christian 2015; Pang and Ruch 2019; Slutsky et al. 2019	Krick and Felfe 2020; Kudesia et al. 2022

(Continues)

10991379, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1002/job.70110 by Ku Leuven, Wiley Online Library on [20/07/2026]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

TABLE 1 | (Continued)

Commonly observed practice	Consequence	Recommendations	Examples of common practice	Examples of recommended practice
(5) Absence of an active control group	Unclear whether observed outcome differences are due to the intervention, to demand effects/other psychological processes, or to both Advice to organizations on the effectiveness of mindfulness interventions compared to alternative interventions is not possible.	- Avoid exclusively having passive control groups like waitlist or no-treatment controls (Creswell 2017; Davidson and Kaszniak 2015; Eby et al. 2019; Gu et al. 2015; Jamieson and Tuckey 2017; Urrila 2022) - Choose control group(s) that are equal on non-specific characteristics such as being equally salient and triggering symmetric demand effects (Davidson and Kaszniak 2015; Lonati et al. 2018) - Do not limit active controls to other types of mindfulness interventions - To make benefits and cost-effectiveness of interventions comparable, also routinely report relative uptake (for voluntary interventions) and intention-to-treat (ITT) effects	Bostock et al. 2019; Leroy et al. 2013; Querstret et al. 2017; Sawyer et al. 2022	Wolever et al. 2012; Choi et al. 2022
(6) Mindfulness reviews portray evidence without sufficient consideration of primary study quality, and methodological recommendations from reviews do not systematically translate into stronger research practice.	Methodologically limited evidence accumulates and gains credibility. Methodological issues are identified, but resulting recommendations are not systematically implemented in research practice, building a stronger base of evidence.	- Reviews should carefully select the studies they summarize based on the original studies' quality (Ioannidis 2016). - Meta-analyses should exclude low-quality studies (Ioannidis 2016), applying strict and field-specific criteria. If studies still differ in quality, sub-analyses can be used to evaluate to what extent study quality impacts the results. - Reviews should be very careful not to portray results of original studies with major methodological issues in an uncritical manner (e.g., referring to "effects" when the original study is correlational or a flawed experiment). - Reviews should clearly point to areas where the field can improve methodologically. - As the author of a primary study, closely consider methodological critique papers and their recommendations.	We do not provide explicit examples here because most reviews have strengths in some areas (e.g., identifying areas for improvement) and weaknesses in others (e.g., quality of selected studies).	We do not provide explicit examples here because most reviews have strengths in some areas (e.g., identifying areas for improvement) and weaknesses in others (e.g., quality of selected studies).

Note: This is a subset of methodological issues identified. Others include the lack of pre-registrations, the lack of power calculations to determine appropriate sample sizes, no adjustments for multiple hypotheses testing, and the use of manipulation checks before measuring the outcome of interest, which we also found to be prevalent in mindfulness intervention studies despite alternative procedures (e.g., Ejelöv and Luke 2020; Hauser et al. 2018; Lonati et al. 2018; Wulff et al. 2023; Zizzo 2010).

[a]A good step in this direction is Liang et al. (2016), where the authors manipulate the mediator in Study 2. However, this is no mindfulness intervention study, but mindfulness is analyzed as a moderator.

10991379, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1002/job.70110 by Ku Leuven, Wiley Online Library on [20/07/2026]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

methodologists and leadership experts, we have no stakes in the game; thus, we can, in a disinterested way, focus on evaluating the strength of the evidence. Although we are critical, our aims are constructive: to encourage future mindfulness research to provide stronger tests that can inform theory and policy and to prompt practitioners to weigh the strength of the underlying scientific evidence. Given the importance of employee well-being, resources should be used wisely.

In the second part of this Point–Counterpoint exchange, Good et al. (in press) provide a counterperspective, arguing that research on mindfulness at the workplace builds on a broad evidence base, also from other fields, and that its methods tend to be equally strong or stronger than those used in much micro-level organizational behavior research. They propose a future research agenda aimed at strengthening the scientific evidence on the topic.

1 | Does Mindfulness Just *Correlate* With or Actually *Cause* Positive Outcomes?

The central aim of mindfulness research is to understand whether being mindful—whether as a state or a trait—benefits individuals' private and professional lives. Studies have explored whether mindfulness correlates with (i.e., "predicts") outcomes such as work–family balance (Allen and Kiburz 2012), mental well-being (Roche et al. 2014), and performance trajectories (Dust et al. 2022). What can we learn from these results? We performed a targeted scan of well-published observational (i.e., survey) studies on the purported effects of mindfulness.[1] Given the correlational designs used, we did not identify a single study that convincingly accounts for potential endogeneity issues when using measures and not manipulations, of mindfulness (Antonakis et al. 2010; Duncan et al. 2004; Maydeu-Olivares et al. 2020). Important sources of endogeneity here include omitted variables at the individual level (e.g., personality and cognitive ability), contextual level (e.g., selection policies and organizational effects), and macro-level (e.g., industry differences) as well as reverse causality (e.g., between mindfulness and sleep quality as discussed by Hülsheger et al. 2014). If these omitted validity threats are left unmodeled, estimates are most likely biased. Some mindfulness researchers attempt to attenuate endogeneity concerns, for instance, by splitting time periods (Chen et al. 2020; Liu et al. 2022), estimating alternative paths (Hülsheger et al. 2014), or adding measured controls reflecting alternative factors that could impact the outcome variable of interest (e.g., ego depletion, Dust et al. 2022). Although attempts to empirically address endogeneity are exactly what is needed, the concrete measures taken remain limited in their ability to solve these concerns: Omitted variables may still bias estimates when collecting data at different time points because omitted variables (e.g., at the individual level like personality and intelligence) will correlate over time (Antonakis et al. 2010); estimating alternative (e.g., reverse) paths does not allow for reliable causal conclusions (Lemmer and Gollwitzer 2017; Thoemmes 2015); and adding endogenous controls such as perceptions or behaviors may even introduce additional bias in estimates (see Angrist and Pischke 2009, on bad controls). Some authors explicitly acknowledge the issue and try to use non-causal language when describing their results. Yet, most papers at some point do imply causality and draw policy implications in their interpretation of findings: for example, "[o]ur research revealed that mindfulness *facilitates* the recovery process in two ways" (Hülsheger et al. 2014, 1125, italics added); and "our research found that team average individual mindfulness is a *key antecedent* of team relational stress and team mindfulness" (Liu et al. 2022, 441, italics added). Such interpretive moves are dangerous. Given that practitioners are usually not trained in methodological nuance, these interpretations can misguide policy. We thus fully agree with the assessment that "as mindfulness moves into organizations, research must be done that increases confidence in causal inferences" (Good et al. 2016, 134).

So, what can mindfulness researchers do to up their game? At a minimum, observational studies should control for participants' intelligence, trait affect, and the Big Five personality traits to demonstrate that mindfulness predicts potential outcomes beyond these stable individual differences. Importantly, many of these traits significantly correlate with measured mindfulness (Baer et al. 2006; Brown and Ryan 2003; Giluk 2009; Guo et al. 2023). Even if mindfulness is predictive beyond these traits (Brown and Ryan 2003; Weinstein et al. 2009), when omitting them from the estimated model, part of the observed relationship between mindfulness and the outcome may capture shared variance with those traits (Brown and Ryan 2003) rather than the effect of mindfulness. Thus, it is important to routinely control for these variables (see Good et al. 2016; Wulff et al. 2023; and for a similar discussion regarding the effects of emotional intelligence, Antonakis 2004; Antonakis et al. 2009; Dasborough et al. 2022). Even then, correlational studies of this sort remain very limited.

Better still, researchers working with observational data should use quasi-experimental techniques such as differences-in-differences estimation, regression discontinuity designs, instrumental variables, or fixed effects[2]/panel designs, which can uncover causal relations when their assumptions are met (Bastardoz et al. 2023; Bliese et al. 2020; Sieweke and Santoni 2020). Quasi-experimental methods are used in other areas of management research such as leadership (e.g., Arvate et al. 2018; Sieweke et al. 2023; Yang et al. 2019); they can too offer promising avenues for strengthening causal inference in the field of mindfulness.

Finally, clean experimental designs are essential for understanding the effect of mindfulness *interventions*. Researchers thus often complement survey studies with experiments (e.g., Jamieson et al. 2022; Sawyer et al. 2022). Although this route is promising in principle, as we argue below, the designs of these intervention studies tend to face systematic limitations that prevent drawing causal conclusions and thus confidently informing policy. Thus, in sum, although measured mindfulness correlates with various potential outcomes, we are not convinced it causes them.

2 | *How* Does Mindfulness Really Work?

Naturally, mindfulness researchers are not only interested in exploring *what* the effects of mindfulness are but also *how* effects are channeled by testing process theories. Most scholars

10991379, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1002/job.70110 by Ku Leuven, Wiley Online Library on [20/07/2026]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

conducting observational studies are aware that their results do not allow for causal conclusions, whether directly or via mediation mechanisms; yet, those studies are commonly framed as "theory-testing" and discussion sections derive "implications for theory." This practice is problematic; moreover, the issue extends to experimental studies, where—given the power of experiments in identifying causal effects—researchers may infer that the estimated coefficients of mediators allow causal interpretation. Here, again, we screened the best available empirical evidence.[3] The majority of experimental studies indeed aimed to also explore the *mechanism* through which mindfulness interventions work, proposing mechanisms like ruminative thought (Long and Christian 2015), or surface acting (Hülsheger et al. 2013). Again, we did not identify any study that employed an estimation procedure that allows for testing—or at least getting closer to—causal chain models such as direct manipulation of the mediator or the experimentally randomized instrumental variable technique (Antonakis et al. 2010; Bullock et al. 2010; Gennetian et al. 2008; Sajons 2020). Instead, all studies used conventional methods based on OLS or SEM regression models, where the mediator is assumed exogenous. In all studies, mediators were potentially endogenous, and their estimated effects likely biased. Still, all but one study (Hülsheger et al. 2022) interpreted the mediation results causally—either explicitly or implicitly, and fewer than half cautioned that a causal interpretation may not be warranted. We encourage mindfulness researchers to adopt stronger causal designs to convincingly examine mechanisms, keeping in mind that "[a]ssessing mediation is a conceptually deep and empirically vexing task" (Bullock et al. 2010, 557) and that usually a set of carefully crafted studies is needed to arrive at convincing results (see Bullock et al. 2010 for a set of recommendations).

3 | Why Does Current Research Focus on Survey-Based Outcome Measures?

Research in fields such as neuropsychology and cognitive psychology has examined the effect of mindfulness interventions on a range of objective outcomes such as physiological responses (e.g., brain activity measured via magnetic resonance imaging (MRI), Tang et al. 2013, and salivary cortisol, Bowden et al. 2012) as well as behavioral responses (e.g., compassionate behavior, Condon et al. 2013; patients' attendance at therapeutic groups, Singh et al. 2006; outcomes in distributive negotiations, Reb and Narayanan 2014; and behavior in an ultimatum game, Kirk et al. 2016).[4]

Yet, mindfulness research in management and applied psychology often relies exclusively on self-report data (e.g., Crain et al. 2017; Dust et al. 2022; Leroy et al. 2013; Roche et al. 2014; see Urrila 2022, for a similar point). This practice is worrisome given the limitations of such measures, including the risk of misalignment of the construct with the measure, measurement error, confounded variance, and socially desirable responding (Fischer et al. 2020, 2023). Some studies complement self-report by other-report data (e.g., on performance, Lyddy et al. 2021; Pang and Ruch 2019); however, potential pitfalls of questionnaire measures remain (e.g., Fischer and Sitkin 2023).

Using objective outcome measures requires more effort, but it is doable. Indeed, some studies employ creative and thoughtful objective outcome measures. Long and Christian (2015) studied retaliation behavior by giving participants an opportunity for theft, Krick and Felfe (2020) measured participants' heart rate and heart rate variability, and Wolever et al. (2012) used blood pressure, breathing, and heart rate variability. We applaud such efforts. Research on mindfulness in the workplace should further pursue this route to credibly demonstrate whether mindfulness has a robust effect also on objectively measurable outcome variables. In addition, future research could systematically explore potential crowding-out or reinforcement effects. For example, when individuals, particularly those under high stress, engage in mindfulness practice, does that encourage complementary health behaviors (e.g., physical activity), or does mindfulness rather substitute for them, thereby reducing engagement in other beneficial activities?

4 | *Who* Benefits From Mindfulness?

To assess the potential benefits (or harms, Lyddy et al. 2021) of mindfulness, a key question is *who* is impacted: Is it the broader employee population or specific subgroups, such as those positively predisposed toward the concept or those experiencing higher (lower) stress levels? Survey studies often look at broader employee samples (e.g., Liu et al. 2022; Lyddy et al. 2021). However, much experimental work relies on selective samples by recruiting participants interested in taking part in an intervention study, often explicitly framed as being about "relaxation" or "mindfulness" (e.g., Hülsheger et al. 2013; Long and Christian 2015; Pang and Ruch 2019; Slutsky et al. 2019). Conducting experiments with selective samples limits the findings to the same type of population, in this case people *who actively opt into such studies.* These individuals have the time to participate, may anticipate benefiting from the intervention, and may also differ in other systematic ways from the broader employee population (e.g., in health, emotional stability, or cognitive ability; see also Janssen et al. 2018). In one case, participants were even required to pay to partake so as "to motivate [them] and reduce the dropout rate" (Pang and Ruch 2019, 152). Such design features may further increase sample selectivity and with it the likelihood of participants ex-post rationalizing the program's benefits especially when using self-reports (as is often done). What recommendations can researchers give to organizations if their studies are based on such design conditions? The answer remains unclear, especially if unobserved factors that predict selection also amplify demand characteristics (cf. Zizzo 2010) from the treatment.

For example, Pang and Ruch (2019) suggest that their results show "that mindfulness interventions are useful resources for facilitating employees' well-being and performance." (p. 160). We would respectfully challenge this conclusion. This study suggests benefits for a population that self-selects into participation and is sufficiently motivated to pay for partaking (which may in itself be an interesting finding); however, it does not permit inferences about benefits for employees more broadly. Perhaps mindfulness interventions will indeed prove to be useful in increasing employee well-being, even performance; however, drawing such conclusions requires sampling strategies

10991379, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1002/job.70110 by Ku Leuven, Wiley Online Library on [20/07/2026]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

that avoid endogeneity effects due to selection. Such sampling is again more effortful, but some mindfulness studies show that it is possible. For instance, Krick and Felfe (2020) used a non-selective sample of police officers and integrated the intervention in a normal police education module, and Kudesia et al. (2022) integrated their intervention into a mandatory university course on self-management techniques.

5 | Are Mindfulness Interventions More Beneficial or Cost Effective Than Alternatives?

Resources are limited, and companies need to know: (a) Do mindfulness interventions benefit employees? and (b) Are mindfulness interventions *more* beneficial or cost effective than alternatives (Lomas et al. 2017)? To answer these questions, researchers must compare the outcome in the treatment group *also* to the outcome in a relevant active control group—a strong counterfactual (Creswell 2017; Davidson and Kaszniak 2015; Eby et al. 2019; Gu et al. 2015; Jamieson and Tuckey 2017; Urrila 2022). Yet, intervention studies on mindfulness at work mostly use only a passive control group such as a waitlist control (e.g., Bostock et al. 2019; Leroy et al. 2013; Querstret et al. 2017; Sawyer et al. 2022). Any observed effect then suggests that the intervention may be beneficial compared to receiving no treatment. Is this effect due to the *mindfulness* intervention? We cannot know—the effect could be due to it but also to other factors such as participants feeling attended to, taking time off work, or actively relaxing. Moreover, the treatment group knows that they are in a treatment and may experience a demand effect, whereas the control group has none (Davidson and Kaszniak 2015; Zizzo 2010): Under such asymmetric demand conditions, estimating a causal effect is not possible (Lonati et al. 2018; Wulff et al. 2023).

If an organization is looking for any possible way to improve employee well-being, comparisons with passive controls can be informative to the extent that reactions are not demand driven. Yet, recommending organizations to invest in mindfulness trainings without knowing how they compare to other, possibly more effective or cheaper, interventions is insufficient; to put it more pointedly, it is almost akin to recommending an expensive medication over a generic one that might be equally effective (cf. Goldacre 2009) or over an equally expensive one that might be more effective. Most researchers seem aware of the problem and acknowledge it in their limitations; yet, the practice remains the standard rather than the exception. Moreover, the issue compounds: Review studies pick up and amplify results comparing mindfulness interventions to only passive controls, and some meta-analyses use such effect sizes even when comparisons to active controls are also available because of the small number of the latter comparisons (e.g., Querstret et al. 2020; Spijkerman et al. 2016).

It would represent a substantial leap forward if mindfulness intervention studies were to routinely also include active non-mindfulness control groups in their design. Such active control conditions should be characterized by similar degrees of non-specific characteristics such as salience (e.g., intervention length and amount of practice), demand characteristics (i.e., participants thinking that they are expected to behave in similar ways, Lonati et al. 2018), and positive treatment expectations. More than a decade ago, Davidson and Kaszniak (2015) comprehensively discussed features of ideal control conditions for mindfulness interventions, providing guidelines for researchers that we hope will see broader uptake in future research. Another related concern is that some studies use another mindfulness intervention as the only active control group (e.g., Pang and Ruch 2019; Slutsky et al. 2019). Although such design potentially allows comparing the effectiveness of two different mindfulness interventions, it does not reveal whether mindfulness training is more beneficial than alternative measures. What if going on a daily 15-min walk were more physiologically and psychologically beneficial? What if allowing greater flexibility in working time or structurally reducing peak workload periods were more beneficial?

Let us also point to two experiments that provide positive examples in this regard. Wolever et al. (2012) compare a group that did not receive any stress management intervention to two mindfulness interventions (in-person and online) and another active stress reduction program (therapeutic yoga), thereby allowing for all relevant comparisons. Another example is Choi et al. (2022) who compare a mindfulness intervention to both an active Pilates intervention and a passive waitlist control. Future studies could extend these explorations by comparing the effectiveness of simple, low-cost interventions, such as taking supplements (e.g., creatine, Sandkühler et al. 2023), or different types of exercise (e.g., Noetel et al. 2024), with that of mindfulness interventions. Moreover, to be maximally informative for organizations, they could routinely report and compare both the relative uptake of different interventions (where participation is voluntary) and their corresponding intention-to-treat (ITT) effects (i.e., the causal effect of offering the intervention).

6 | The Ambivalent Role of Mindfulness Reviews

As the number of empirical studies on workplace mindfulness increases, so do meta-analyses (e.g., Bartlett et al. 2019; Vonderlin et al. 2020), integrative reviews (e.g., Good et al. 2016; Shahbaz and Parker 2022), systematic reviews focusing primarily on contents (Janssen et al. 2018; Lomas et al. 2017; Urrila 2022) or on study characteristics and time trends (Eby et al. 2019; Stuart-Edwards et al. 2023), as well as method reviews (e.g., Davidson and Kaszniak 2015; Jamieson and Tuckey 2017). Such work could drive the field of mindfulness at work toward stronger research methods, but this potential has yet to be realized in the interplay between reviews and research practice.

Integrative reviews, as in other fields, often include studies with systematic methodological shortcomings (Ioannidis 2016), summarizing their results in a largely uncritical way. A common issue, for instance, is that correlational findings are described using terminology that suggests causality. Although some authors caution against methodological shortcomings of mindfulness research, such as endogeneity, toward the end of the review (e.g., Good et al. 2016), such work is still frequently cited for the "effects" of mindfulness, thus snowballing into an evidentiary narrative (e.g., Chen et al. 2020; Stuart-Edwards et al. 2023).

10991379, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1002/job.70110 by Ku Leuven, Wiley Online Library on [20/07/2026]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

Meta-analyses, and in part, systematic reviews, tend to be somewhat more cautious. Commendably, they often include a "risk of bias" evaluation on different dimensions (e.g., allocation concealment or incomplete outcome data); they also frequently include the risk measure or other study characteristics, such as the type of control group, as moderators in the analysis (Bartlett et al. 2019; Vonderlin et al. 2020). However, drawing strong conclusions from such moderation analyses is typically difficult because of small sample sizes of primary studies (e.g., only 11 studies had active control groups in Vonderlin et al. 2020 and only five in Bartlett et al. 2019). Moreover, other systematic issues like self-selected samples, insufficient statistical power, or revealing the study purpose via manipulation checks have, to our knowledge, not yet been systematically considered. An example of an interesting meta-analysis comes from the medical field. Galante et al. (2021) analyzed a relatively large number of 136 trials (applying Bonferroni corrections to account for multiple outcomes). They found that the effects of mindfulness interventions attenuate or disappear when compared to specific active control treatments or when considering only studies with lower risk of bias. We wonder whether the same would be observed in our discipline if the research upheld higher methodological standards.

Method reviews, finally, tend to be most balanced and highlight critical issues such as the need for active control groups and objective measures (e.g., Davidson and Kaszniak 2015; Jamieson and Tuckey 2017). Yet, these calls are, by and large, not reflected in research practice, including those from some content reviews (e.g., Good et al. 2016 on control variables and causal inference). For instance, even though virtually all reviews point to the importance of active control groups as a benchmark (e.g., Davidson and Kaszniak 2015; Jamieson and Tuckey 2017; Van Dam et al. 2018), the fraction of well-published intervention studies with an active control condition has not gone up; likewise, studies relying exclusively on self-report outcomes remain equally common! An area where some improvement may be taking place is the selectiveness of samples.[5]

7 | Conclusion

We highlighted six prevalent issues of mindfulness research to keep our critique focused. Still, there are additional areas with room for improvement. For instance, study pre-registration, which helps contribute to open science and guard against *p*-hacking, HARKing, and reporting bias (see also Coronado-Montoya et al. 2016; Van Dam et al. 2018), is not often used in mindfulness research, despite a general uptake elsewhere (Logg and Dorison 2021; Simmons et al. 2021). Likewise, most studies lack power calculations to determine the required sample size, and many use multiple dependent variables without appropriate statistical adjustments (Bonferroni 1935; List et al. 2019).

Given health threats like metabolic syndrome (Liang et al. 2023) and limited societal resources, it is incumbent upon us as scientists to assure that resources targeted at increasing employee health and well-being are guided by clean causal evidence. Of course, no study is perfect or all-encompassing, and in science we usually hope for cumulative research to balance out the shortcomings of individual studies, making the overall body of work informative. Taken together, these points raise a broader question: To what extent can or should imperfect evidence guide policy? We highlight four considerations that we deem relevant in the present context. First, what is the *nature of the needed evidence*: descriptive (e.g., opinions about a policy initiative) or causal (e.g., how an intervention affects employees)? Second, how *urgent* is the need for knowledge? In situations of crisis (e.g., a health pandemic), conducting a set of elaborated studies may not be possible before a decision. Third, what is at *stake*, that is, how costly are erroneous implications? And fourth, are rigorous studies *feasible* (e.g., in terms of sample accessibility and ethics)? We argue that workplace mindfulness is largely a case where we need causal knowledge, urgency is low (given more than a decade of research), stakes are high (employee well-being), and there are no systematic barriers to rigorous study designs. Yet, our coding suggests that, even in top-tier management and applied psychology journals, methodological standards leave much room for improvement, with important implications for the interpretability of results.

Other areas of Organizational Behavior like leadership research have engaged in intense and, sometimes, difficult debates over methodological rigor (Antonakis 2017; Banks et al. 2021, 2023; Fischer 2023; Fischer et al. 2023, 2024; Wulff et al. 2023). As a result, an increasing number of studies now contribute to a body of causal evidence that can meaningfully guide policy (for instance by manipulating constructs that were previously measured, e.g., Meslec et al. 2020; Stock et al. 2023, or by employing quasi-experimental estimation techniques, e.g., Arvate et al. 2018; Sieweke and Santoni 2020; Yang et al. 2019).

As the field of mindfulness at work moves forward, this is a moment for ambition! Powerful methodological tools are at our disposal. What remains is to apply them with care and in combination. The business of mindfulness is huge—whether these investments are justified must ultimately be determined by strong scientific evidence.

Funding

The authors have nothing to report.

Data Availability Statement

The data that support the findings of this study are openly available in OSF at https://osf.io/hnmdv?view_only=78b4bcc0e2fd4d9cac3e8e5e29f72512.

Endnotes

[1] We focused on the best available evidence in the field: a random set of (micro-level) mindfulness studies published between 2010 and July 2023 in the 10 top-tier journals in management and applied psychology, selected based on their 5-year impact factor in 2022 as published by the Web of Science. Throughout this article, we concentrate on this literature because managerial decision-makers are most likely to access research on employee well-being through management-oriented or translational sources.

[2] Note that as detailed in Antonakis et al. (2021), fixed effects are not the same as fixed coefficients, which we at times found to be termed "fixed effects" in the mindfulness literature, (e.g., Hülsheger et al. 2021).

10991379, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1002/job.70110 by Ku Leuven, Wiley Online Library on [20/07/2026]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

[3]We looked at all (micro-level) mindfulness interventions studies published between 2010 and July 2023 in the 10 top-tier journals in management and applied psychology, selected based on their 5-year impact factor in 2022 as published by the Web of Science. In an effort to contribute to open science, we uploaded a coding table of the individual studies to the following OSF repository: https://osf.io/hnmdv?view_only=78b4bcc0e2fd4d9cac3e8e5e29f72512.

[4]These studies may have other issues such as small sample sizes or no (strong) control group. We cite them here to showcase examples of objectively measurable outcome variables.

[5]To gain an impression of how these methodological issues have developed over time, we again looked at all experimental studies published between 2010 and July 2023 in the 10 top-tier journals in management and applied psychology. Comparing those studies published before 2020 (12) with those published thereafter (9) shows that the use of only non-active control conditions went from 50% to 67%, the use of only self-report measures went from 67% to 89%, and the use of invitation-based self-selected samples went from 83% to 33% (or from 92% to 78% when online samples are also considered self-selected). Although this analysis is based on only a small number of studies, it suggests no clear trend toward systematically tackling these methodological issues in the best published research.

References

Allen, T. D., and K. M. Kiburz. 2012. "Trait Mindfulness and Work–Family Balance Among Working Parents: The Mediating Effects of Vitality and Sleep Quality." *Journal of Vocational Behavior* 80, no. 2: 372–379. https://doi.org/10.1016/j.jvb.2011.09.002.

Angrist, J. D., and J.-S. Pischke. 2009. *Mostly Harmless Econometrics: An Empiricist's Companion*. Princeton University Press. https://doi.org/10.1515/9781400829828-010.

Antonakis, J. 2004. "On Why "Emotional Intelligence" Will Not Predict Leadership Effectiveness Beyond IQ or the "Big Five": An Extension and Rejoinder." *Organizational Analysis* 12, no. 2: 171–182. https://doi.org/10.1108/eb028991.

Antonakis, J. 2017. "On Doing Better Science: From Thrill of Discovery to Policy Implications." *Leadership Quarterly* 28, no. 1: 5–21. https://doi.org/10.1016/j.leaqua.2017.01.006.

Antonakis, J., N. M. Ashkanasy, and M. T. Dasborough. 2009. "Does Leadership Need Emotional Intelligence?" *Leadership Quarterly* 20, no. 2: 247–261. https://doi.org/10.1016/j.leaqua.2009.01.006.

Antonakis, J., N. Bastardoz, and M. Rönkkö. 2021. "On Ignoring the Random Effects Assumption in Multilevel Models: Review, Critique, and Recommendations." *Organizational Research Methods* 24, no. 2: 443–483. https://doi.org/10.1177/1094428119877457.

Antonakis, J., S. Bendahan, P. Jacquart, and R. Lalive. 2010. "On Making Causal Claims: A Review and Recommendations." *Leadership Quarterly* 21, no. 6: 1086–1120. https://doi.org/10.1016/j.leaqua.2010.10.010.

Arvate, P. R., G. W. Galilea, and I. Todescat. 2018. "The Queen Bee: A Myth? The Effect of Top-Level Female Leadership on Subordinate Females." *Leadership Quarterly* 29, no. 5: 533–548. https://doi.org/10.1016/j.leaqua.2018.03.002.

Baer, R. A., G. T. Smith, J. Hopkins, J. Krietemeyer, and L. Toney. 2006. "Using Self-Report Assessment Methods to Explore Facets of Mindfulness." *Assessment* 13, no. 1: 27–45. https://doi.org/10.1177/1073191105283504.

Banks, G. C., T. Fischer, J. Gooty, and G. Stock. 2021. "Ethical Leadership: Mapping the Terrain for Concept Cleanup and a Future Research Agenda." *Leadership Quarterly* 32, no. 2: 101471. https://doi.org/10.1016/j.leaqua.2020.101471.

Banks, G. C., H. M. Woznyj, and C. A. Mansfield. 2023. "Where Is "Behavior" in Organizational Behavior? A Call for a Revolution in Leadership Research and Beyond." *Leadership Quarterly* 34, no. 6: 101581. https://doi.org/10.1016/j.leaqua.2021.101581.

Bartlett, L., A. Martin, A. L. Neil, et al. 2019. "A Systematic Review and Meta-Analysis of Workplace Mindfulness Training Randomized Controlled Trials." *Journal of Occupational Health Psychology* 24, no. 1: 108–126. https://doi.org/10.1037/ocp0000146.

Bastardoz, N., M. J. Matthews, G. B. Sajons, T. Ransom, T. K. Kelemen, and S. H. Matthews. 2023. "Instrumental Variables Estimation: Assumptions, Pitfalls, and Guidelines." *Leadership Quarterly* 34, no. 1: 101673. https://doi.org/10.1016/j.leaqua.2022.101673.

Bliese, P. D., D. J. Schepker, S. M. Essman, and R. E. Ployhart. 2020. "Bridging Methodological Divides Between Macro- and Microresearch: Endogeneity and Methods for Panel Data." *Journal of Management* 46, no. 1: 70–99. https://doi.org/10.1177/0149206319868016.

Bonferroni, C. E. 1935. "Il Calcolo Delle Assicurazioni su Gruppi di Teste." Tipografia del Senato. https://www.scienceopen.com/document?vid=cd883b0b-739a-4555-adeb-03d644e370f5.

Bostock, S., A. D. Crosswell, A. A. Prather, and A. Steptoe. 2019. "Mindfulness On-The-Go: Effects of a Mindfulness Meditation App on Work Stress and Well-Being." *Journal of Occupational Health Psychology* 24, no. 1: 127–138. https://doi.org/10.1037/ocp0000118.

Bowden, D., C. Gaudry, S. C. An, and J. Gruzelier. 2012. "A Comparative Randomised Controlled Trial of the Effects of Brain Wave Vibration Training, Iyengar Yoga, and Mindfulness on Mood, Well-Being, and Salivary Cortisol." *Evidence-Based Complementary and Alternative Medicine* 2012: 1–13. https://doi.org/10.1155/2012/234713.

Brown, K. W., and R. M. Ryan. 2003. "The Benefits of Being Present: Mindfulness and Its Role in Psychological Well-Being." *Journal of Personality and Social Psychology* 84, no. 4: 822–848. https://doi.org/10.1037/0022-3514.84.4.822.

Bullock, J. G., D. P. Green, and S. E. Ha. 2010. "Yes, but What's the Mechanism? (Don't Expect an Easy Answer)." *Journal of Personality and Social Psychology* 98, no. 4: 550–558. https://doi.org/10.1037/a0018933.

Chen, Z., T. D. Allen, and L. Hou. 2020. "Mindfulness, Empathetic Concern, and Work–Family Outcomes: A Dyadic Analysis." *Journal of Vocational Behavior* 119: 1–18. https://doi.org/10.1016/j.jvb.2020.103402.

Choi, E., H. Leroy, A. Johnson, and H. Nguyen. 2022. "Flaws and All: How Mindfulness Reduces Error Hiding by Enhancing Authentic Functioning." *Journal of Occupational Health Psychology* 27, no. 5: 451–469. https://doi.org/10.1037/ocp0000327.

Condon, P., G. Desbordes, W. B. Miller, and D. DeSteno. 2013. "Meditation Increases Compassionate Responses to Suffering." *Psychological Science* 24, no. 10: 2125–2127. https://doi.org/10.1177/0956797613485603.

Coronado-Montoya, S., A. W. Levis, L. Kwakkenbos, R. J. Steele, E. H. Turner, and B. D. Thombs. 2016. "Reporting of Positive Results in Randomized Controlled Trials of Mindfulness-Based Mental Health Interventions." *PLoS ONE* 11, no. 4: e0153220. https://doi.org/10.1371/journal.pone.0153220.

Crain, T. L., K. A. Schonert-Reichl, and R. W. Roeser. 2017. "Cultivating Teacher Mindfulness: Effects of a Randomized Controlled Trial on Work, Home, and Sleep Outcomes." *Journal of Occupational Health Psychology* 22, no. 2: 138–152. https://doi.org/10.1037/ocp0000043.

Creswell, J. D. 2017. "Mindfulness Interventions." *Annual Review of Psychology* 68, no. 1: 491–516. https://doi.org/10.1146/annurev-psych-042716-051139.

Dasborough, M. T., N. M. Ashkanasy, R. H. Humphrey, P. D. Harms, M. Credé, and D. Wood. 2022. "Does Leadership Still Not Need Emotional Intelligence? Continuing "The Great EI Debate."." *Leadership Quarterly* 33, no. 6: 101539. https://doi.org/10.1016/j.leaqua.2021.101539.

10991379, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1002/job.70110 by Ku Leuven, Wiley Online Library on [20/07/2026]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

Davidson, R. J., and A. W. Kaszniak. 2015. "Conceptual and Methodological Issues in Research on Mindfulness and Meditation." *American Psychologist* 70, no. 7: 581–592. https://doi.org/10.1037/a0039512.

Duncan, G. J., K. A. Magnuson, and J. Ludwig. 2004. "The Endogeneity Problem in Developmental Studies." *Research in Human Development* 1, no. 1–2: 59–80. https://doi.org/10.1207/s15427617rhd0101&2_5.

Dust, S. B., H. Liu, S. Wang, and C. S. Reina. 2022. "The Effect of Mindfulness and Job Demands on Motivation and Performance Trajectories Across the Workweek: An Entrainment Theory Perspective." *Journal of Applied Psychology* 107, no. 2: 221–239. https://doi.org/10.1037/apl0000887.

Eby, L. T., T. D. Allen, K. M. Conley, R. L. Williamson, T. G. Henderson, and V. S. Mancini. 2019. "Mindfulness-Based Training Interventions for Employees: A Qualitative Review of the Literature." *Human Resource Management Review* 29, no. 2: 156–178. https://doi.org/10.1016/j.hrmr.2017.03.004.

Ejelöv, E., and T. J. Luke. 2020. ""Rarely Safe to Assume": Evaluating the Use and Interpretation of Manipulation Checks in Experimental Social Psychology." *Journal of Experimental Social Psychology* 87: 103937. https://doi.org/10.1016/j.jesp.2019.103937.

Fischer, T. 2023. "Measuring Behaviors Counterfactually." *Leadership Quarterly* 34, no. 6: 101750. https://doi.org/10.1016/j.leaqua.2023.101750.

Fischer, T., J. Dietz, and J. Antonakis. 2017. "Leadership Process Models: A Review and Synthesis." *Journal of Management* 43, no. 6: 1726–1753. https://doi.org/10.1177/0149206316682830.

Fischer, T., J. Dietz, and J. Antonakis. 2024. "A Fatal Flaw: Positive Leadership Style Research Creates Causal Illusions." *Leadership Quarterly* 35, no. 3: 101771. https://doi.org/10.1016/j.leaqua.2023.101771.

Fischer, T., D. C. Hambrick, G. B. Sajons, and N. Van Quaquebeke. 2023. "Leadership Science Beyond Questionnaires." *Leadership Quarterly* 34, no. 6: 101752. https://doi.org/10.1016/j.leaqua.2023.101752.

Fischer, T., D. Hambrick, G. Sajons, and N. Van Quaquebeke. 2020. "Beyond the Ritualized Use of Questionnaires: Toward a Science of Actual Behaviors and Psychological States." *Leadership Quarterly* 31, no. 4: 10144. https://doi.org/10.1016/S1048-9843(20)30076-X.

Fischer, T., and S. B. Sitkin. 2023. "Leadership Styles: A Comprehensive Assessment and Way Forward." *Academy of Management Annals* 17, no. 1: 331–372. https://doi.org/10.5465/annals.2020.0340.

Galante, J., C. Friedrich, A. F. Dawson, et al. 2021. "Mindfulness-Based Programmes for Mental Health Promotion in Adults in Nonclinical Settings: A Systematic Review and Meta-Analysis of Randomised Controlled Trials." *PLoS Medicine* 18, no. 1: 1–40. https://doi.org/10.1371/journal.pmed.1003481.

Gennetian, L. A., K. Magnuson, and P. A. Morris. 2008. "From Statistical Associations to Causation: What Developmentalists Can Learn From Instrumental Variables Techniques Coupled With Experimental Data." *Developmental Psychology* 44, no. 2: 381–394. https://doi.org/10.1037/0012-1649.44.2.381.

Giluk, T. L. 2009. "Mindfulness, Big Five Personality, and Affect: A Meta-Analysis." *Personality and Individual Differences* 47, no. 8: 805–811. https://doi.org/10.1016/j.paid.2009.06.026.

Goldacre, B. 2009. *Bad Science*. Fourth Estate.

Good, D. J., C. J. Lyddy, and K. W. Brown. in press. Mindfulness at Work: Strengthening the Scientific Evidence." *Journal of Organizational Behavior*.

Good, D. J., C. J. Lyddy, T. M. Glomb, et al. 2016. "Contemplating Mindfulness at Work: An Integrative Review." *Journal of Management* 42, no. 1: 114–142. https://doi.org/10.1177/0149206315617003.

Gu, J., C. Strauss, R. Bond, and K. Cavanagh. 2015. "How Do Mindfulness-Based Cognitive Therapy and Mindfulness-Based Stress Reduction Improve Mental Health and Wellbeing? A Systematic Review and Meta-Analysis of Mediation Studies." *Clinical Psychology Review* 37: 1–12. https://doi.org/10.1016/j.cpr.2015.01.006.

Guo, Q., S. Li, J. Liang, X. Yu, and Y. Lv. 2023. "Mindfulness May Be Associated With Less Prosocial Engagement Among High Intelligence Individuals." *Scientific Reports* 13, no. 1: 4208. https://doi.org/10.1038/s41598-023-31039-3.

Hauser, D. J., P. C. Ellsworth, and R. Gonzalez. 2018. "Are Manipulation Checks Necessary?" *Frontiers in Psychology* 9: Art 998. https://doi.org/10.3389/fpsyg.2018.00998.

Hülsheger, U. R., H. J. E. M. Alberts, A. Feinholdt, and J. W. B. Lang. 2013. "Benefits of Mindfulness at Work: The Role of Mindfulness in Emotion Regulation, Emotional Exhaustion, and Job Satisfaction." *Journal of Applied Psychology* 98, no. 2: 310–325. https://doi.org/10.1037/a0031313.

Hülsheger, U. R., J. W. B. Lang, F. Depenbrock, C. Fehrmann, F. R. H. Zijlstra, and H. J. E. M. Alberts. 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, no. 6: 1113–1128. https://doi.org/10.1037/a0037702.

Hülsheger, U. R., S. Van Gils, and A. Walkowiak. 2021. "The Regulating Role of Mindfulness in Enacted Workplace Incivility: An Experience Sampling Study." *Journal of Applied Psychology* 106, no. 8: 1250–1265. https://doi.org/10.1037/apl0000824.

Hülsheger, U. R., T. Yang, J. E. Bono, Z. Goh, and R. Ilies. 2022. "Stop the Spin: The Role of Mindfulness Practices in Reducing Affect Spin." *Journal of Occupational Health Psychology* 27, no. 6: 529–543. https://doi.org/10.1037/ocp0000332.

Ioannidis, J. P. A. 2016. "The Mass Production of Redundant, Misleading, and Conflicted Systematic Reviews and Meta-Analyses." *Milbank Quarterly* 94, no. 3: 485–514. https://doi.org/10.1111/1468-0009.12210.

Jamieson, S. D., and M. R. Tuckey. 2017. "Mindfulness Interventions in the Workplace: A Critique of the Current State of the Literature." *Journal of Occupational Health Psychology* 22, no. 2: 180–193. https://doi.org/10.1037/ocp0000048.

Jamieson, S. D., M. R. Tuckey, Y. Li, and A. D. Hutchinson. 2022. "Is Primary Appraisal a Mechanism of Daily Mindfulness at Work?" *Journal of Occupational Health Psychology* 27, no. 4: 377–391. https://doi.org/10.1037/ocp0000324.

Janssen, M., Y. Heerkens, W. Kuijer, B. Van Der Heijden, and J. Engels. 2018. "Effects of Mindfulness-Based Stress Reduction on Employees' Mental Health: A Systematic Review." *PLoS ONE* 13, no. 1: e0191332. https://doi.org/10.1371/journal.pone.0191332.

Kirk, U., X. Gu, C. Sharp, A. Hula, P. Fonagy, and P. R. Montague. 2016. "Mindfulness Training Increases Cooperative Decision Making in Economic Exchanges: Evidence From fMRI." *NeuroImage* 138: 274–283. https://doi.org/10.1016/j.neuroimage.2016.05.075.

Krick, A., and J. Felfe. 2020. "Who Benefits From Mindfulness? The Moderating Role of Personality and Social Norms for the Effectiveness on Psychological and Physiological Outcomes Among Police Officers." *Journal of Occupational Health Psychology* 25, no. 2: 99–112. https://doi.org/10.1037/ocp0000159.

Kudesia, R. S., A. Pandey, and C. S. Reina. 2022. "Doing More With Less: Interactive Effects of Cognitive Resources and Mindfulness Training in Coping With Mental Fatigue From Multitasking." *Journal of Management* 48, no. 2: 410–439. https://doi.org/10.1177/0149206320964570.

Lemmer, G., and M. Gollwitzer. 2017. "The "True" Indirect Effect Won't (Always) Stand Up: When and Why Reverse Mediation Testing Fails." *Journal of Experimental Social Psychology* 69: 144–149. https://doi.org/10.1016/j.jesp.2016.05.002.

10991379, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1002/job.70110 by Ku Leuven, Wiley Online Library on [20/07/2026]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

Leroy, H., F. Anseel, N. G. Dimitrova, and L. Sels. 2013. "Mindfulness, Authentic Functioning, and Work Engagement: A Growth Modeling Approach." *Journal of Vocational Behavior* 82, no. 3: 238–247. https://doi.org/10.1016/j.jvb.2013.01.012.

Levin, M. 2017. "Why Google, Nike, and Apple Love Mindfulness Training, and How You Can Easily Love It Too." Inc. https://www.inc.com/marissa-levin/why-google-nike-and-apple-love-mindfulness-training-and-how-you-can-easily-love-.html.

Liang, L. H., H. Lian, D. J. Brown, D. L. Ferris, S. Hanig, and L. M. Keeping. 2016. "Why Are Abusive Supervisors Abusive? A Dual-System Self-Control Model." *Academy of Management Journal* 59, no. 4: 1385–1406. https://doi.org/10.5465/amj.2014.0651.

Liang, X., B. Or, M. F. Tsoi, C. L. Cheung, and B. M. Y. Cheung. 2023. "Prevalence of Metabolic Syndrome in the United States National Health and Nutrition Examination Survey 2011–18." *Postgraduate Medical Journal* 99, no. 1175: 985–992. https://doi.org/10.1093/postmj/qgad008.

List, J. A., A. M. Shaikh, and Y. Xu. 2019. "Multiple Hypothesis Testing in Experimental Economics." *Experimental Economics* 22, no. 4: 773–793. https://doi.org/10.1007/s10683-018-09597-5.

Liu, X., X. Zheng, Y. Yu, B. P. Owens, and D. Ni. 2022. "How and When Team Average Individual Mindfulness Facilitates Team Mindfulness: The Roles of Team Relational Stress and Team Individual Mindfulness Diversity." *Journal of Organizational Behavior* 43, no. 3: 430–447. https://doi.org/10.1002/job.2564.

Logg, J. M., and C. A. Dorison. 2021. "Pre-Registration: Weighing Costs and Benefits for Researchers." *Organizational Behavior and Human Decision Processes* 167: 18–27. https://doi.org/10.1016/j.obhdp.2021.05.006.

Lomas, T., J. C. Medina, I. Ivtzan, S. Rupprecht, R. Hart, and F. J. Eiroa-Orosa. 2017. "The Impact of Mindfulness on Well-Being and Performance in the Workplace: An Inclusive Systematic Review of the Empirical Literature." *European Journal of Work and Organizational Psychology* 26, no. 4: 492–513. https://doi.org/10.1080/1359432X.2017.1308924.

Lonati, S., B. F. Quiroga, C. Zehnder, and J. Antonakis. 2018. "On Doing Relevant and Rigorous Experiments: Review and Recommendations." *Journal of Operations Management* 64: 19–40. https://doi.org/10.1016/j.jom.2018.10.003.

Long, E. C., and M. S. Christian. 2015. "Mindfulness Buffers Retaliatory Responses to Injustice: A Regulatory Approach." *Journal of Applied Psychology* 100, no. 5: 1409–1422. https://doi.org/10.1037/apl0000019.

Lyddy, C. J., D. J. Good, M. C. Bolino, P. S. Thompson, and J. P. Stephens. 2021. "The Costs of Mindfulness at Work: The Moderating Role of Mindfulness in Surface Acting, Self-Control Depletion, and Performance Outcomes." *Journal of Applied Psychology* 106, no. 12: 1921–1938. https://doi.org/10.1037/apl0000863.

Maydeu-Olivares, A., D. Shi, and A. J. Fairchild. 2020. "Estimating Causal Effects in Linear Regression Models With Observational Data: The Instrumental Variables Regression Model." *Psychological Methods* 25, no. 2: 243–258. https://doi.org/10.1037/met0000226.

Meslec, N., P. L. Curseu, O. C. Fodor, and R. Kenda. 2020. "Effects of Charismatic Leadership and Rewards on Individual Performance." *Leadership Quarterly* 31, no. 6: 101423. https://doi.org/10.1016/j.leaqua.2020.101423.

Noetel, M., T. Sanders, D. Gallardo-Gómez, et al. 2024. "Effect of Exercise for Depression: Systematic Review and Network Meta-Analysis of Randomised Controlled Trials." *BMJ* 384: e075847. https://doi.org/10.1136/bmj-2023-075847.

Pang, D., and W. Ruch. 2019. "Fusing Character Strengths and Mindfulness Interventions: Benefits for Job Satisfaction and Performance." *Journal of Occupational Health Psychology* 24, no. 1: 150–162. https://doi.org/10.1037/ocp0000144.

Popper, K. 1989. *Conjectures and Refutations: The Growth of Scientific Knowledge*. Routledge.

Querstret, D., M. Cropley, and C. Fife-Schaw. 2017. "Internet-Based Instructor-Led Mindfulness for Work-Related Rumination, Fatigue, and Sleep: Assessing Facets of Mindfulness as Mechanisms of Change. A Randomized Waitlist Control Trial." *Journal of Occupational Health Psychology* 22, no. 2: 153–169. https://doi.org/10.1037/ocp0000028.

Querstret, D., L. Morison, S. Dickinson, M. Cropley, and M. John. 2020. "Mindfulness-Based Stress Reduction and Mindfulness-Based Cognitive Therapy for Psychological Health and Well-Being in Nonclinical Samples: A Systematic Review and Meta-Analysis." *International Journal of Stress Management* 27, no. 4: 394–411. https://doi.org/10.1037/str0000165.

Reb, J., and J. Narayanan. 2014. "The Influence of Mindful Attention on Value Claiming in Distributive Negotiations: Evidence From Four Laboratory Experiments." *Mindfulness* 5, no. 6: 756–766. https://doi.org/10.1007/s12671-013-0232-8.

Roche, M., J. M. Haar, and F. Luthans. 2014. "The Role of Mindfulness and Psychological Capital on the Well-Being of Leaders." *Journal of Occupational Health Psychology* 19, no. 4: 476–489. https://doi.org/10.1037/a0037183.

Sajons, G. B. 2020. "Estimating the Causal Effect of Measured Endogenous Variables: A Tutorial on Experimentally Randomized Instrumental Variables." *Leadership Quarterly* 31, no. 5: 101348. https://doi.org/10.1016/j.leaqua.2019.101348.

Sandkühler, J. F., X. Kersting, A. Faust, et al. 2023. "The Effects of Creatine Supplementation on Cognitive Performance—A Randomised Controlled Study." *BMC Medicine* 21, no. 1: 440. https://doi.org/10.1186/s12916-023-03146-5.

Sawyer, K. B., C. N. Thoroughgood, E. E. Stillwell, M. K. Duffy, K. L. Scott, and E. A. Adair. 2022. "Being Present and Thankful: A Multi-Study Investigation of Mindfulness, Gratitude, and Employee Helping Behavior." *Journal of Applied Psychology* 107, no. 2: 240–262. https://doi.org/10.1037/apl0000903.

Shahbaz, W., and J. Parker. 2022. "Workplace Mindfulness: An Integrative Review of Antecedents, Mediators, and Moderators." *Human Resource Management Review* 32, no. 3: 100849. https://doi.org/10.1016/j.hrmr.2021.100849.

Sieweke, J., D. Bostandzic, and S.-M. Smolinski. 2023. "The Influence of Top Management Team Gender Diversity on Firm Performance During Stable Periods and Economic Crises: An Instrumental Variable Analysis." *Leadership Quarterly* 34, no. 5: 101703. https://doi.org/10.1016/j.leaqua.2023.101703.

Sieweke, J., and S. Santoni. 2020. "Natural Experiments in Leadership Research: An Introduction, Review, and Guidelines." *Leadership Quarterly* 31, no. 1: 101338. https://doi.org/10.1016/j.leaqua.2019.101338.

Simmons, J. P., L. D. Nelson, and U. Simonsohn. 2021. "Pre-Registration: Why and How." *Journal of Consumer Psychology* 31, no. 1: 151–162. https://doi.org/10.1002/jcpy.1208.

Singh, N. N., S. D. Singh, M. Sabaawi, R. E. Myers, and R. G. Wahler. 2006. "Enhancing Treatment Team Process Through Mindfulness-Based Mentoring in an Inpatient Psychiatric Hospital." *Behavior Modification* 30, no. 4: 423–441. https://doi.org/10.1177/0145445504272971.

Slutsky, J., B. Chin, J. Raye, and J. D. Creswell. 2019. "Mindfulness Training Improves Employee Well-Being: A Randomized Controlled Trial." *Journal of Occupational Health Psychology* 24, no. 1: 139–149. https://doi.org/10.1037/ocp0000132.

Spijkerman, M. P. J., W. T. M. Pots, and E. T. Bohlmeijer. 2016. "Effectiveness of Online Mindfulness-Based Interventions in Improving Mental Health: A Review and Meta-Analysis of Randomised Controlled Trials." *Clinical Psychology Review* 45: 102–114. https://doi.org/10.1016/j.cpr.2016.03.009.

10991379, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1002/job.70110 by Ku Leuven, Wiley Online Library on [20/07/2026]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

Stock, G., G. C. Banks, E. N. Voss, S. Tonidandel, and H. Woznyj. 2023. "Putting Leader (Follower) Behavior Back Into Transformational Leadership: A Theoretical and Empirical Course Correction." *Leadership Quarterly* 34, no. 6: 101632. https://doi.org/10.1016/j.leaqua.2022.101632.

Stuart-Edwards, A., A. MacDonald, and M. A. Ansari. 2023. "Twenty Years of Research on Mindfulness at Work: A Structured Literature Review." *Journal of Business Research* 169: 1–12. https://doi.org/10.1016/j.jbusres.2023.114285.

Tang, Y.-Y., R. Tang, and M. I. Posner. 2013. "Brief Meditation Training Induces Smoking Reduction." *Proceedings of the National Academy of Sciences* 110, no. 34: 13971–13975. https://doi.org/10.1073/pnas.1311887110.

Tavris, C., and E. Aronson. 2007. *Mistakes Were Made (But Not by Me): Why We Justify Foolish Beliefs, Bad Decisions, and Hurtful Acts*. Harcourt.

Thoemmes, F. 2015. "Reversing Arrows in Mediation Models Does Not Distinguish Plausible Models." *Basic and Applied Social Psychology* 37, no. 4: 226–234. https://doi.org/10.1080/01973533.2015.1049351.

Urrila, L. I. 2022. "From Personal Wellbeing to Relationships: A Systematic Review on the Impact of Mindfulness Interventions and Practices on Leaders." *Human Resource Management Review* 32, no. 3: 1–17. https://doi.org/10.1016/j.hrmr.2021.100837.

Van Dam, N. T., M. K. Van Vugt, D. R. Vago, et al. 2018. "Mind the Hype: A Critical Evaluation and Prescriptive Agenda for Research on Mindfulness and Meditation." *Perspectives on Psychological Science* 13, no. 1: 36–61. https://doi.org/10.1177/1745691617709589.

Vermeulen, F. 2005. "On Rigor and Relevance: Fostering Dialectic Progress in Management Research." *Academy of Management Journal* 48, no. 6: 978–982. https://doi.org/10.5465/amj.2005.19573102.

Vonderlin, R., M. Biermann, M. Bohus, and L. Lyssenko. 2020. "Mindfulness-Based Programs in the Workplace: A Meta-Analysis of Randomized Controlled Trials." *Mindfulness* 11, no. 7: 1579–1598. https://doi.org/10.1007/s12671-020-01328-3.

Weinstein, N., K. W. Brown, and R. M. Ryan. 2009. "A Multi-Method Examination of the Effects of Mindfulness on Stress Attribution, Coping, and Emotional Well-Being." *Journal of Research in Personality* 43, no. 3: 374–385. https://doi.org/10.1016/j.jrp.2008.12.008.

Wolever, R. Q., K. J. Bobinet, K. McCabe, et al. 2012. "Effective and Viable Mind-Body Stress Reduction in the Workplace: A Randomized Controlled Trial." *Journal of Occupational Health Psychology* 17, no. 2: 246–258. https://doi.org/10.1037/a0027278.

Wulff, J. N., G. B. Sajons, G. Pogrebna, et al. 2023. "Common Methodological Mistakes." *Leadership Quarterly* 34, no. 1: 101677. https://doi.org/10.1016/j.leaqua.2023.101677.

Yang, P., J. Riepe, K. Moser, K. Pull, and S. Terjesen. 2019. "Women Directors, Firm Performance, and Firm Risk: A Causal Perspective." *Leadership Quarterly* 30, no. 5: 101297. https://doi.org/10.1016/j.leaqua.2019.05.004.

Zizzo, D. J. 2010. "Experimenter Demand Effects in Economic Experiments." *Experimental Economics* 13, no. 1: 75–98. https://doi.org/10.1007/s10683-009-9230-z.

10991379, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1002/job.70110 by Ku Leuven, Wiley Online Library on [20/07/2026]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License