

Mindfulness or relaxation: What is more effective for work stress? Literature review

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Psychologie a její kontexty 13 (1), 2022, 33–45
<https://doi.org/10.15452/PsyX.2022.13.0003>



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Abstract Objective. Work demands for productivity and flexibility are on the rise. In the last 20 years, hourly productivity has increased by 20 % (OECD, 2020). One of the adverse consequences of increased work demands is work stress (Quick & Henderson, 2016). There has been a growing need for organizations to reduce work stress, which is why stress management interventions (SMI) are quickly gaining popularity (Kröll et al., 2017). The aim of this paper is to introduce mindfulness and relaxation as approaches used in stress management interventions (SMI) in the work environment. Mindfulness is an ability we can cultivate with training and consists of two basic skills – monitoring of present-moment experience (based on attention and awareness) and attitude of acceptance and openness towards own experience. Accepting attitude has an essential role in stress management. Relaxation causes stress reduction in two ways: by promoting beneficial physiological processes (improved breathing rate, heart rate) and by focusing on pleasant, relaxing sensations. The paper characterizes these approaches, discussing their efficacy, specificities, differences, and circumstances that support their effectiveness.

Method. The efficacy of the investigated approaches was evaluated through the most up-to-date meta-analyses of randomized controlled trials. Papers were searched through the Scopus database.

Results. The results of the meta-analyses of mindfulness SMI agreed on satisfactory efficacy, showing a medium effect size. The findings of meta-analyses of relaxation SMI also demonstrated a medium effect size and suggested yoga-based interventions might be most effective. More importantly, both approaches are characterised by certain advantages and disadvantages. The advantages of the mindfulness approach include proven effectiveness in stress reduction and also other benefits in the work environment, such

as improved creativity and problem-solving skills. However, practising mindfulness requires a lot of discipline, time and high commitment. The relaxation approach seems to offer stress reduction but no other benefits. Relaxation is also easier to learn and practice. Therefore, the mindfulness approach and the relaxation approach may be more appropriate for different groups of workers. For workers preferring straightforward instructions, easy-to-understand concepts, and less time-consuming interventions, relaxation is probably a more suitable alternative (Kaspereen, 2012). Highly motivated workers, willing to undergo more time-consuming and harder-to-understand training, may benefit more from mindfulness interventions. Mindfulness interventions may also be more appropriate for workers whose jobs involve a lot of planning and mental work and who may suffer from rumination of negative thoughts (Jain et al., 2007). Therefore, if organisations plan to reduce workers' stress, it is essential to identify workers' preferences and carefully weigh the advantages and disadvantages of each approach.

Discussion. Mindfulness and relaxation SMI can both be considered as options for reducing stress in the workplace in certain circumstances. The key is to identify the preferences of the workers in question and ensure that the chosen intervention is implemented well and thoroughly. The article offers a new perspective on the topic of dealing with stress in the workplace. This information is beneficial not only for researchers but also for psychologists/managers seeking solutions for their organisations. The study is limited by the fact that mindfulness and relaxation SMI in the workplace are not researched to the same extent. Future researchers should consider an experimental comparison of quality yoga and mindfulness interventions, in different work settings.

Keywords mindfulness, relaxation, work stress, stress management.

Background and Research aims

Societal transformations such as digitalisation, globalisation, and recent changes due to the Covid-19 pandemic have dramatically changed the world of work in the last decades. Work has become more complex and requires workers to be more versatile and flexible than ever before. Hourly productivity has increased by around 20 % since 2000 in OECD countries (OECD, 2020). Adverse consequences of increased work demands include exhaustion, burnout, health problems, and work stress (Quick & Henderson, 2016).

Over the years, there has been a growing need, but also a growing interest, for organizations to reduce work stress, which is why stress management interventions (SMI) are becoming increasingly widely used (Kröll et al., 2017; Yang et al., 2016). SMI encompass all interventions of any type, aimed primarily at enhancing stress regulation in the workplace (Holman et al., 2018). In this study, we discuss two stress management approaches that are among the most widely used in the world of work – the mindfulness approach and the relaxation-based approach (Gelles, 2015; Kaspereen, 2012).

Mindfulness and relaxation, what they are and how they differ

Mindfulness is a central aspect of Buddhist mental training. Mindfulness consists of two basic skills – monitoring of present-moment experience (for which attention and awareness are needed) and attitude of acceptance and openness towards own experience. Monitoring of experience is only possible when focused attention is paired with an awareness of that attention, together forming a cognitive basis for a mindfulness state. Indeed, monitoring is the necessary foundation for creating a state of mindfulness, but it is only the basis for cultivating the key aspect of mindfulness (responsible for positive outcomes) – an accepting, equanimous attitude towards one's own experience. This attitude contrasts with normal, habitual tendencies of the mind to suppress, avoid, prolong, or fixate on certain stimuli (Anālayo, 2022; Lindsay & Creswell, 2019; Good et al., 2015).

Mindfulness thus involves four related mechanisms that together form one cyclical process: (a) intention (to cultivate attention, awareness and acceptance), (b) focused attention, (c) awareness, and (d) change of attitude towards openness and acceptance. This process leads to a change in perception and also to a change in attitude. Change in perception (improved monitoring) leads to strengthening and greater clarity of perception of thoughts and feelings. Change in attitude shifts toward acceptance of one's own experience and builds a more positive and open relationship with that experience. It is crucial to emphasize that although the monitoring aspect (attention and awareness) is a necessary condition in the cultivation of mindfulness, research shows that only when this monitoring aspect is coupled with an accepting attitude does mindfulness create the appropriate conditions for improved emotional regulation and reduced perceived stress (Lindsay & Creswell, 2019; Dan-Glauser & Gross, 2015; Shapiro et al., 2006).

Mindfulness improves work in several areas. Focused attention on the present moment helps to concentrate on the work task, promoting resilience to distraction

(Glomb et al., 2011). An attitude of openness and acceptance helps emotional regulation, stress management and fosters creativity, opens new perspectives, and improves problem-solving (Lindsay & Creswell, 2019; Taylor et al., 2015; Baas et al., 2014).

The relaxation approach to stress is based on the assumption that states of relaxation and stress cannot occur simultaneously in the body. In other words, the approach assumes that it is not possible to experience both relaxation and stress at the same time – so increasing the level of relaxation automatically reduces the level of stress. Techniques of the approach do not address the source of stress but seek to alleviate its symptoms (Holman et al., 2018).

The relaxation approach most commonly uses deep, slow breathing techniques and the techniques of conscious muscle tension release, also known as progressive muscle relaxation. The deep, slow breathing technique involves contraction of the diaphragm, expansion of the abdomen, and deepening of inhalation and exhalation, which reduces the overall breathing rate. Research has shown that deep breathing training decreases rates of not only self-assessed perceptions of stress but also objective indicators of stress such as heart rate and stress hormone levels (Perciavalle et al., 2016).

Progressive muscle relaxation utilises the principle of focusing attention on a specific muscle group, its contraction and subsequent relaxation. This process is repeated with all muscle groups, giving the practitioner a sense of relaxation throughout the body (Mera-kou et al., 2019).

The common process of different relaxation techniques is focusing on feelings of psychological and bodily wellbeing and calmness. Relaxation is thus the process of cultivating what is perceived as pleasant and calming which physiologically decreases the activity of the sympathetic nervous system (Vambheim et al., 2021).

Although both mindfulness and relaxation have a positive effect on stress management, the mechanism of their help differs significantly. The relaxation approach promotes stress management in two basic ways: (a) by promoting beneficial physiological processes (changes in breathing rate, heart rate) and (b) by focusing on pleasurable, relaxing sensations. These processes are of course interconnected (Vambheim et al., 2021; Perciavalle et al., 2016). Mechanisms of stress reduction in mindfulness practice are substantially different. Mindfulness focuses on the whole field of consciousness at once and follows the structure of our experience. Attention is not only focused on pleasant stimuli; perception is extended to the whole experience, to which an accepting attitude is applied. Acceptance, as a result, increases emotional regulation and reduces feelings of stress (Anālayo, 2022; Lindsay & Creswell, 2019).

The paper aims to explore the efficacy of these approaches in improving stress management and characterise the circumstances that support their effectiveness. In addition to researchers, this material may be useful for occupational psychologists or managers of organizations where work stress has become a problem.

Method

For the purposes of our paper, analysing the results of published meta-analyses is the most reliable and efficient way to assess the efficacy of each approach. Meta-analyses of randomized controlled trials or RCTs (experimental studies with randomized sample allocation) are generally considered to provide a high level of evidence (Ahn & Kang, 2018). Meta-analyses were searched through Scopus databases.

To make the information more comprehensible, we reported three meta-analyses within one SMI approach. Consequently, we did not review all the meta-analyses published in the given SMI approach; we selected the most recent or relevant ones. This approach can be argued from the fact that most recent meta-analyses often cover older research and thus also include the content of meta-analyses published earlier.

To specify a searching process of mindfulness SMI, we used the keywords *mindfulness* AND *meta-analysis* AND *workplace* OR *workplace_stress* OR *occupational_stress*. Considering the amount of research, we limited the search to research no older than 2019. We have found 18 papers. We excluded articles that did not examine the general working population, did not focus specifically on a mindfulness approach and did not report an effect on stress. Three meta-analyses remained (Vonderlin et al., 2020; Slemp et al., 2019; Bartlett et al., 2019).

In the case of relaxation SMI, we used the keywords *relaxation* AND *meta-analysis* AND *workplace* OR *workplace_stress* OR *occupational_stress*. Firstly, we limited the search to research no older than 2019 (as in the previous search), but we haven't found enough relevant research. We have extended the search terms to research no older than 2015. Excluding duplicates, we found 15 papers. We excluded articles that did not focus specifically on a relaxation approach and did not report an effect on stress. Three meta-analyses remained (Zhang et al., 2021; Valle et al., 2020; Ruotsalainen et al., 2015).

The effectiveness of mindfulness-based SMI

SMI based on practising mindfulness has gained a prominent position in the world of work. Although the first mindfulness interventions started to be used in the second half of the 1980s, it was only after 2000 when exponential growth in popularity happened – especially after influential companies such as Google and Intel started to utilise them. Nowadays, this type of intervention is one of the most widely used SMIs worldwide (Gelles, 2015).

But does the popularity of this approach match its efficacy? In the following section, we analyse the results of three recent meta-analyses. In Table 1, we list their authors, the year of publication, description of the study and results. Although utilised meta-analyses examine many different dependent variables, we only report stress reduction or similar variables (Vonderlin et al., 2020; Slemp et al., 2019; Bartlett et al., 2019).

Table 1*Results of meta-analyses of mindfulness SMI*

Authors and year of publication	Description of study	Results
Vonderlin et al. 2020	56 RCT studies were analysed, with basic inclusion criteria: 1.) sample of healthy adults, 2.) mindfulness/meditation-based intervention with at least 2 h of training, 3.) programs offered at the workplace or initiated by the employer. Stress was assessed by measuring perceived stress, subsyndromal symptoms, burnout, somatization and physical illness	The effect size was calculated on the value of $g = -0,66$ for perceived stress reduction
Slemp et al. 2019	119 RCT and quasi-experiment studies were analysed, with basic inclusion criteria: 1.) sample of adult employee participants examined within an organizational setting, 2.) one or more forms of mindfulness-based, meditation-based, ACT-based intervention, 3.) employee psychological distress was tested. Psychological distress was self-reported	The effect size was calculated on the value of $d = 0,55$ for psychological distress reduction
Bartlett et al. 2019	23 RCT studies were analysed, with basic inclusion criteria: 1.) interventions were explicitly described as mindfulness programs, 2.) organized by employers and delivered for staff within the work context. Interventions of selected studies ranged in time from 10 to 25 minutes of daily practice. Stress was measured by the Perceived Stress Scale	The effect size was calculated on the value of $g = 0,56$ for perceived stress reduction

Note. Cohen d and Hedges g , effect size, 0,2 = small, 0,5 = medium, 0,8 = large

The results in Table 1 show that a medium effect size was consistently found in all three analyses. These analyses indicate that mindfulness interventions are effective in reducing workplace stress. The analyses also found improvements in other variables such as work engagement, productivity, and job satisfaction. Vonderlin and colleagues discovered stress reduction was maintained even after three months from stopping mindfulness training (Vonderlin et al., 2020).

The effectiveness of relaxation-based SMI

Relaxation has been applied in workplace conditions for decades and has not lost its popularity, as evidenced by the many available relaxation-based work programs. It is most commonly used as a tool for managing work stress and involves training, usually at a frequency of at least once a week, with relatively clear, straightforward instructions (Kaspereen, 2012; Akyurek et al., 2020).

In Table 2, we present meta-analyses of relevant studies in the same structure as in the previous section (Zhang et al., 2021; Valle et al., 2020; Ruotsalainen et al., 2015).

Table 2
Results of meta-analyses of relaxation-based SMI

Authors and year of publication	Description of study	Results
Zhang et al. 2021	15 RCT studies were analysed, with basic inclusion criteria: 1.) a physical relaxation intervention group and a non-intervention control group or multiple physical relaxation groups, 2.) sample of adult healthcare workers 3.) at least one continuous measure of stress was reported. Psychological distress was self-reported, using multiple scales; PSS was most often used	Meta-analysis was performed for standard mean differences (SMD) in stress measures from baseline between subjects undergoing relaxation vs controls. Analysis shows that physical relaxation methods overall reduced measures of occupational stress at the longest duration of follow-up vs baseline compared to non-intervention controls (SMD -0.53). Only yoga alone (SMD -0.71) and massage therapy alone (SMD -0.43) were more effective than control, with yoga identified as the best method
Valle et al. 2020	6 studies were analysed, with inclusion criteria: 1.) Yoga interventions carried out at a workplace, 2.) randomized and non-randomized study design with at least two arms of intervention (Yoga vs. control), 3.) at least one measure of perceived stress as a dependent variable of the study. Psychological stress was self-reported, using multiple scales; PSS was most often used	The effect size was calculated on the value of $d = -0,67$ for perceived stress reduction
Ruotsalainen et al. 2015	16 RCT studies comparing relaxation intervention (physical and mental relaxation) vs no intervention were analysed, with basic inclusion criteria: 1.) adult healthcare workers, 2.) interventions aimed at preventing psychological stress. Psychological stress was self-reported, using various scales, for example, Maslach Burnout Inventory (MBI)	The effect size was calculated on the value of SMD = -0.48 for stress reduction

Note. Cohen d , effect size, 0,2 = small, 0,5 = medium, 0,8 = large. SMD, 0,2 - 0,5 = small, 0,5-0,8 = medium, > 0,8 = large.

The results in Table 2 present medium effect sizes. 2015 meta-analysis analysing general (physical and mental) relaxation interventions (Ruotsalainen et al., 2015) demonstrated a medium effect size and also reported that the effect of the programmes was maintained after 6 months of the interventions ending. A more recent meta-analyses (Zhang et al., 2021; Valle et al., 2020) suggested yoga stress-reduction interventions may be the most effective of all types of relaxation interventions.

What is better for the work environment, mindfulness or relaxation?

Mindfulness and relaxation may seem like similar practices in many ways, but they are quite different. Some confusion prevails among scientists and clinical psychologists about how similar these practices are. Researchers generally acknowledge that these practices are significantly different, as evidenced by the fact that relaxation is often used in the control group in the research of the effects of mindfulness. Clinical psychologists, in contrast, typically understand mindfulness (or meditation) and relaxation as interchangeable or combined and inseparable practices (Lancaster et al., 2016). The different interpretations and understandings of these approaches are understandable. Mindfulness practices inevitably include elements of relaxation, as the body (and mind) should be relaxed as much as possible during meditation. Relaxation practices, on the other hand, require awareness and focus on one's own body in the present moment (Luberto et al., 2020).

Despite the aforementioned similarities, fundamental differences between mindfulness and relaxation do exist. The goals of these practices differ – while relaxation replaces stressful thoughts with relaxing ones and unpleasant feelings with pleasant ones, the goal of mindfulness techniques is to monitor one's own experience and to accept both positive and negative contents of consciousness. The outcomes of the interventions are also not identical. Research comparing mindfulness and relaxation interventions suggests that both approaches are effective in reducing distress and increasing positive mood, but the mindfulness approach cultivates other qualities as well. Mindfulness (but not relaxation) can also improve decentring (a state of detachment and improved perspective based on awareness) (Feldman et al., 2010) reduce rumination of negative thoughts (Jain et al., 2007) and develop creativity and problem-solving skills (Baas et al., 2014), which can benefit workers in many fields. Therefore, it seems that mindfulness compared to relaxation may offer broader benefits, relevant to the work environment.

So is mindfulness SMI a better alternative compared to relaxation in all circumstances? The answer is not clear. Although mindfulness SMI demonstrably offers wider benefits, it also presents some challenges. The biggest challenges of practising mindfulness (whether in or out of the work environment) are the high demands of discipline, time, consistency, commitment, and also the rather complicated understanding of mindfulness principles, often requiring study (Santorelli, 2014). For example, MBSR (Mindfulness-Based Stress Reduction), the most widely used mindfulness program focusing on stress management, requires 45 minutes of independent, 'formal' practice at least 6 days a week, for a total of 8 weeks, in addition to a 2.5-hour meeting once a week. Practising "informal" techniques and studying various materials is also highly recommended (Salmoirago-Blotcher, 2021). The process of being more mindful in the workplace also requires significant effort or "mental energy", which can reduce mental resources needed for high-demand work (Roche et al., 2020).

When comparing these requirements with relaxation techniques, progressive muscle relaxation usually requires a maximum of 25 minutes per day. The practice instructions also do not involve a relatively difficult to grasp focusing on one's own mental processes

and regulating thinking and awareness (as in the case of mindfulness); they include relatively straightforward acts of tensing and relaxing muscles (Merakou et al., 2019).

Based on these characteristics, we can speculate that the mindfulness approach and the relaxation approach may be more appropriate for different groups of workers. For workers preferring simpler, straightforward instructions, easy-to-understand concepts, and less time-consuming interventions, relaxation is probably a more suitable alternative (Kaspereen, 2012). It is also a more appropriate alternative if the organization's priority is solely stress reduction and other potential benefits are not needed.

Highly motivated workers, willing to undergo more time-consuming and more challenging-to-understand training, may benefit more from mindfulness interventions. Mindfulness interventions are also more appropriate for workers whose jobs involve a lot of planning and mental work and who may struggle with rumination of negative thoughts (Jain et al., 2007). The mindfulness approach may also be the right choice when organizations are interested in developing the creativity and problem-solving skills of their workers in addition to reducing work stress (Baas et al., 2014).

It is also worth considering combining these approaches or gradually learning both approaches. In that case, the worker can either directly reduce the tension (relaxation approach) or, if it cannot be easily reduced, be aware of and accept the tension (mindfulness approach). Training in both approaches can offer the worker a wider choice of tools that are more applicable in different situations (Luberto et al., 2020).

It should also be added that choosing the appropriate and scientifically sound approach to reducing work stress is not the only criterion that will ultimately determine the intervention's effectiveness. Effective interventions are those that are both well-chosen and well-implemented. This fact is also reflected in research practices – if our goal is to obtain objective knowledge, we must take consider the quality of implementation when validating the effectiveness of an intervention. An intervention may fail not because it lacks value but because of poor application in a particular organisation. Thus, whatever type of intervention is chosen, it should have been applied consistently and fully (Durlak, 2015).

Discussion

Stress is an important topic in today's world of work (Quick & Henderson, 2016) and many managers or occupational psychologists are faced with the question of how to deal with it. The demands on workers seem to increase, and it is in the interest of both employees (mental health) and management (job performance) to manage these demands without experiencing unnecessary strain.

We reported the efficacy of two approaches (mindfulness and relaxation) through the available and up-to-date meta-analyses and reported effect sizes. Both mindfulness-based and relaxation-based SMI demonstrated medium effect sizes; however, in the case of relaxation SMIs, meta-analyses point mainly to the demonstrable effectiveness of yoga-based interventions (the effectiveness of other types of relaxation interventions has not yet been consistently demonstrated).

Which of these two intervention approaches should be preferred? The answer is not simple – context is the key. For workers favouring more easily grasped instructions and concepts and less time-consuming training, and at the same time for management that intends to focus solely on reducing work stress, a relaxation intervention is probably the appropriate solution. For workers willing to try more intense, slightly more complicated training (Salmoirago-Blotcher, 2021) and for management interested in enhancing creativity, focus or problem-solving in addition to stress reduction, a mindfulness-based intervention is a more suitable alternative (Baas et al., 2014).

Consequently, the quality of the decision might depend on the fact how well management knows its workers. Discussion with employees on areas described above might be needed. Alternatively, with the help of an occupational psychologist, a diagnostic or screening of workers can be implemented in order to identify their preferences.

Effective implementation of the intervention is also essential. Even a scientifically sound intervention, if not adequately put into practice, will not produce the expected results. That is why it must be ensured that the intervention is applied at the recommended length, frequency and, most importantly, quality (Durlak, 2015).

Finally, the completion of the intervention should be followed by an evaluation diagnostic. If the intervention was successful, we should be able to measure a positive shift in the workers' experience of stress (in this case, stress should also be measured before the start of the intervention) or at least a high level of satisfaction with the intervention and its outcomes. When neither a positive shift nor satisfaction is detected, further, and other alternative stress reduction options should be considered (Robbins, 2005).

The limitation of the present study is that it compares research in areas that are not equally scientifically developed. In the recent decade, mindfulness research has been experiencing tremendous growth, hence many high-quality RCTs and meta-analyses have been produced evaluating its effectiveness. Compared to mindfulness, relaxation has received relatively less research attention in recent years, hence there are fewer high-quality meta-analyses assessing its effectiveness (especially in the working environment). This is exemplified by the fact that meta-analyses of relaxation interventions often focus on health professionals and not on the general population of workers. This fact affected our choice of meta-analyses to be compared and made interpretation of this comparison quite difficult.

It is also possible that the finding that mindfulness (compared to relaxation) promotes other benefits besides stress reduction is due in part to the fact that relaxation interventions in work settings are, overall, much less researched.

Future researchers should consider an experimental comparison of quality evidence-based yoga intervention (de Manincor et al., 2015) and well-established mindfulness interventions, for example, MBSR (Mindfulness-Based Stress Reduction), in different work environments with different workers. It is also vital to examine not only the effectiveness of stress reduction but also other desirable work benefits and the cost and time efficiency of the interventions.

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