THE MODULATING EFFECT OF MINDFULNESS ON THE RELATIONSHIP BETWEEN WORK CHARACTERISTICS AND BURNOUT

Sonia De Castro Flos, Beatriz Sora-Miana, Francisco Ganga, David Álvarez-Maldonado, Carlos Aparicio Puentes and Nicolás Barrientos Oradini

SUMMARY

Mindfulness, defined as the intentional, non-judgmental awareness of the present moment, has been increasingly recognized for its potential to improve workplace well-being. This study explores the relationship between mindfulness and work-related stress, with a focus on its impact on key job characteristics. A survey was conducted with 400 employees across various sectors in Spain. The findings reveal that mindfulness is positively associated with several job characteristics, including social support and autonomy. Moreover, mindfulness was found to reduce work-related stress, particularly when it interacts with these positive job characteristics. These results underscore the practical value of mindfulness interventions in the workplace, highlighting their potential to enhance employee well-being and mitigate burnout.

Introduction

The term mindfulness is most frequently used in accordance with the definition put forward by Kabat-Zinn (2003) as "the particular state of consciousness that arises by paying attention, intentionally and non-judgmentally, in the present moment, living the experience moment by moment" (p. 145). As such, the practice of mindfulness has become the focus of increasing interest in the psychology of work and organizations. Nevertheless, it is a subject of growing but scarce theoretical treatment or empirical research in the workplace in the psychology of work and organizations (Good *et al*., 2016; Saraç, 2020).

One of the most researched psychosocial variables in the psychology of work and organizations is occupational burnout, due to the negative impact it has on the health of workers. Many studies have examined the underlying processes through which mindfulness gives rise to positive well-being outcomes (Bishop *et al*., 2004; Brown and Ryan, 2003; Brown *et al*., 2007; Glomb *et al*., 2011; Salvati, 2025). According to Leroy *et al*. (2013), mindfulness can make workers more attentive, focused, and immersed in their tasks, and more likely to discover new ways and procedures to perform their duties.

In this context, mindfulness plays a key role in the relationship between job characteristics and burnout (Creswell and Lindsay, 2014; Gonzáles and Neves, 2015; Oblitas, 2017; Schultz *et al*., 2015; Virgili, 2015; Ru *et al*., 2025) by influencing the perception and interpretation of workplace stressors. Job characteristics, such as tasks, knowledge, context, and social aspects, can lead to work-related stress and contribute to burnout, negatively affecting employees' well-being and productivity. However, mindfulness has proven to be an effective strategy for reducing stress and work-related anxiety, mitigating the detrimental effects of job design (Creswell and Lindsay, 2014; Virgili, 2015; Ahmed and Yousaf, 2025). By fostering a more adaptive interpretation of work demands, mindfulness moderates this relationship, helping employees to better

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EL EFECTO MODULADOR DEL MINDFULNESS EN LA RELACIÓN ENTRE LAS CARACTERÍSTICAS DEL TRABAJO Y EL SÍNDROME DE BURNOUT

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RESUMEN

El mindfulness, definido como la conciencia intencional y no crítica del momento presente, ha sido cada vez más reconocido por su potencial para mejorar el bienestar en el lugar de trabajo. Este estudio explora la relación entre el mindfulness y el estrés laboral, con un enfoque en su impacto en las características clave del trabajo. Se realizó una encuesta con 400 empleados de varios sectores en España. Los hallazgos revelan que el mindfulness está asociado positivamente con varias características del trabajo, incluyendo el apoyo social y la autonomía. Además, se encontró que el mindfulness reduce el estrés laboral, especialmente cuando interactúa con estas características positivas del trabajo. Estos resultados subrayan el valor práctico de las intervenciones de mindfulness en el lugar de trabajo, destacando su potencial para mejorar el bienestar de los empleados y mitigar el agotamiento.

O EFEITO MODULADOR DO MINDFULNESS NA RELAÇÃO ENTRE AS CARACTERÍSTICAS DO TRABALHO E A SÍNDROME DE BURNOUT

Sonia De Castro Flos, Beatriz Sora-Miana, Francisco Ganga, David Álvarez-Maldonado, Carlos Aparicio Puentes e Nicolás Barrientos Oradini

RESUMO

O mindfulness, definido como a consciência intencional e sem julgamento do momento presente, tem sido cada vez mais reconhecido por seu potencial em melhorar o bem-estar no ambiente de trabalho. Este estudo explora a relação entre o mindfulness e o estresse relacionado ao trabalho, com foco no impacto em características-chave do trabalho. Foi realizada uma pesquisa com 400 funcionários de diversos setores na Espanha. Os resultados revelam que o mindfulness está positivamente associado a várias características do trabalho, incluindo apoio social e autonomia. Além disso, descobriu-se que o mindfulness reduz o estresse relacionado ao trabalho, especialmente quando interage com essas características positivas do trabalho. Esses resultados ressaltam o valor prático das intervenções de mindfulness no ambiente de trabalho, destacando seu potencial para melhorar o bem-estar dos funcionários e mitigar o esgotamento.

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cope with the challenges of the work environment (Schultz *et al*., 2015; Gonzáles and Neves, 2015; Oblitas, 2017; Spataro *et al*., 2025).

Scientific literature in this field has been extensive. A search in the Web of Science index using the Boolean formula: ((TS=(mindfulness)) AND TS=(burnout OR "work characteristics")) AND DT=(Article) within the Social Sciences Citation Index (SSCI) yields a total of 1,060 results from 1975 to 2024, with a total of 29,473 citations, and 25,931 citations excluding self-citations. This corresponds to an average of 27.8 citations per item and an H-Index of 82. The distribution of publications and citations is represented in Figure 1 and Table I.

The most significant research articles within this dataset are described in Figure 2 and Table II. The leading article is Krasner *et al*. (2009), which has been cited 1,005 times. This study demonstrated that a mindfulness training program for primary care physicians effectively reduced stress and burnout while

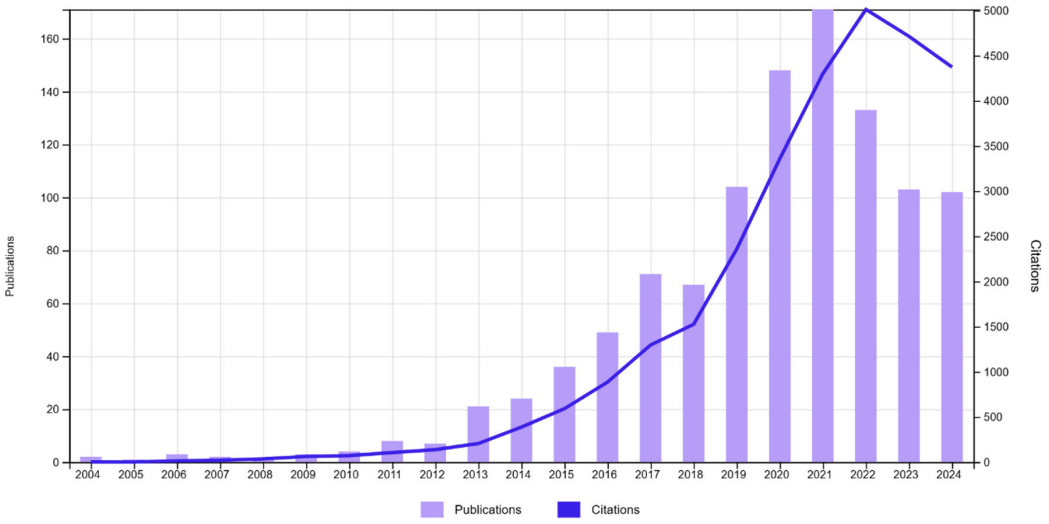

Figure 1. Productivity and citations in Web of Science.

TABLE I
PRODUCTIVITY AND CITATIONS IN WEB OF SCIENCE

Publication years	Count
2024	102
2023	103
2022	133
2021	171
2020	148
2019	104
2018	67
2017	71
2016	49
2015	36
2014	24
2013	21
2012	7
2011	8
2010	4
2009	3
2008	1
2007	2
2006	3
2005	1
2004	2

enhancing empathy towards patients. The research focused on the effects of an intensive continuing medical education program centered on mindfulness, communication, and self-awareness for a group of primary care physicians. Key findings include: (a) Reduction of stress and burnout: Physicians experienced a significant decrease in emotional exhaustion and depersonalization, alongside an increase in personal accomplishment. (b) Enhanced empathy: Their ability to empathize with patients and understand their experiences improved notably. (c) Improved overall well-being: Participants reported better mood and a greater sense of well-being. These findings suggest that mindfulness training programs can be a valuable tool for improving physicians' mental health and well-being, as well as the quality of care they provide to patients. The second most cited study is Shapiro *et al*. (2007), with 654 citations. This research examined the effects of mindfulness-based stress reduction (MBSR) on the mental health of trainee therapists. Participation in an MBSR1 program was associated with increased mindfulness levels, which were linked to various beneficial outcomes. These included improved emotional regulation, enhanced focus, and overall better mental health among the trainees.

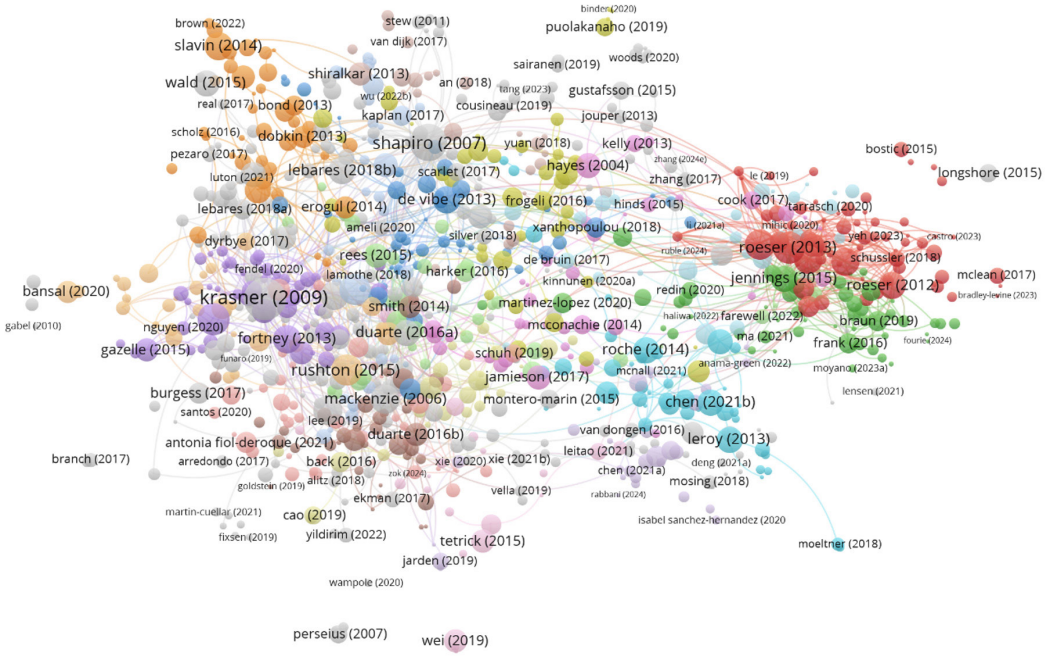

Figure 2. Network map of relevant articles. Source: Web of Science using VOSviewer.

The most prolific and highly cited author is P. A. Jennings, with 16 published articles and a total of 1,448 citations across this body of work (Figure 3 and Table III). Their two main articles are Teaching Self-Care to Caregivers: Effects of Mindfulness-Based Stress Reduction on the Mental Health of Therapists in Training and Impacts of the CARE for Teachers Program on Teachers' Social and Emotional Competence and Classroom Interactions.

The first article focuses on a mindfulness-based professional development program designed to reduce teacher stress and improve teaching quality, which was found to be highly effective. Teachers who participated in the program experienced a significant reduction in stress and improvements in their social-emotional skills, resulting in a better classroom climate.

The second article addresses a mindfulness-based training program for teachers, also designed to reduce stress. This program demonstrated high effectiveness, as participating teachers reported a significant decrease in stress levels and enhanced social-emotional skills, leading to a more positive classroom environment.

The leading universities, with the most influential productivity due to citations, are the University of Rochester, with a productivity of 12 documents and 1,726 citations. The second most influential university was Pennsylvania State University, with 21 articles and 1,454 citations determining its influence. The University of Virginia has a productivity of 26 articles and 1,430 citations. This can be seen in Figure 4.

In the case of countries (Figure 5), the most influential and productive is the USA, with 430 documents and 17,062 citations, followed by Canada in influence with a productivity of 67 articles and 2,805 citations, Australia with 81 articles and 2,405 citations, Spain with 73 articles and 1,602 citations, and England with 78 articles and 1,599 citations. The second most productive

TABLE II
RELEVANT ARTICLES FROM WEB OF SCIENCE

Document	Citations
Krasner (2009) Association of an Educational Program in Mindful Communication With Burnout, Empathy, and Attitudes Among Primary Care Physicians.	1005
Shapiro (2007) Teaching Self-Care to Caregivers: Effects of Mindfulness-Based Stress Reduction on the Mental Health of Therapists in Training.	654
West (2014) Intervention to Promote Physician Well-being, Job Satisfaction, and Professionalism A Randomized Clinical Trial.	425
Roeser (2013) Mindfulness Training and Reductions in Teacher Stress and Burnout: Results From Two Randomized, Waitlist-Control Field Trials.	393
Rushton (2015) Burnout and Resilience Among Nurses Practicing in High-Intensity Settings.	366
Van Mol (2015) The Prevalence of Compassion Fatigue and Burnout among Healthcare Professionals in Intensive Care Units: A Systematic Review.	352
Flook (2013) Mindfulness for Teachers: A Pilot Study to Assess Effects on Stress, Burnout, and Teaching Efficacy.	318
Mackenzie (2006) A Brief Mindfulness-based Stress Reduction Intervention for Nurses and Nurse Aides.	286
Goodman (2012) A Mindfulness Course Decreases Burnout and Improves Well-being Among Healthcare Providers.	284
Fortney (2013) Abbreviated Mindfulness Intervention for Job Satisfaction, Quality of Life, and Compassion in Primary Care Clinicians: A Pilot Study.	275
Jennings (2017) Impacts of the CARE for Teachers Program on Teachers' Social and Emotional Competence and Classroom Interactions.	272
Jennings (2013) Improving Classroom Learning Environments by Cultivating Awareness and Resilience in Education (CARE): Results of a Randomized Controlled Trial.	267

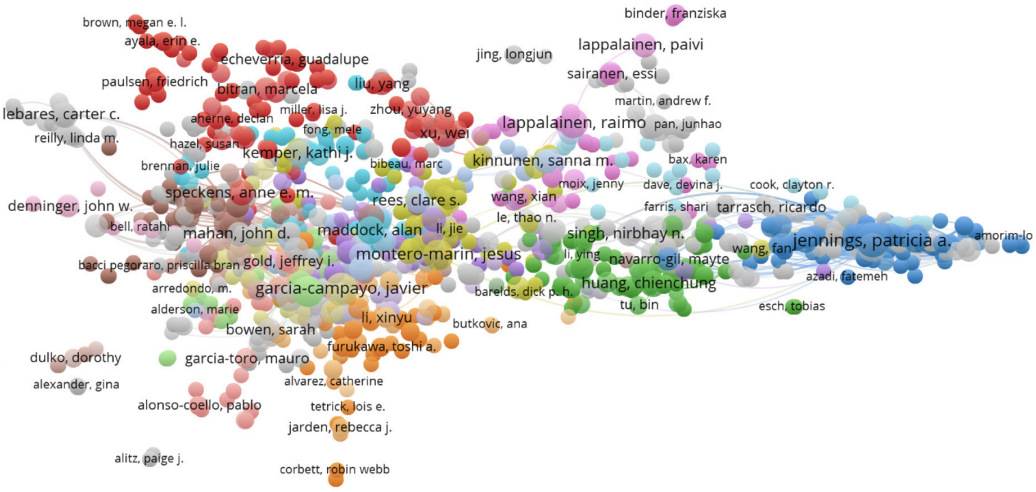

Figure 3. Network map of relevant authors. Source: Web of Science using VOSviewer.

country, after the USA, is China, with 140 articles and 1,324 citations of influence.

Occupational burnout was originally studied almost exclusively within the context of human services (Lee and Ashforth, 1996; Schaufeli and Enzmann, 1998), but the focus has recently shifted to encompass other occupational fields as well.

Morgeson and Humphrey (2006) conducted several studies into work design, in which they define four main characteristics of work: (a) task characteristics, which include autonomy in work scheduling; (b) knowledge characteristics; (c) social characteristics; and (d) characteristics of the work context. Work stress and burnout are detrimental to employee well-being and can lead to increased absenteeism, organizational dysfunction, and decreased productivity (Colligan and Higgins, 2006). Many studies have shown that mindfulness interventions reliably reduce both general psychological stress (Creswell and Lindsay, 2014) and job-related anxiety (Virgili, 2015). Therefore, our first hypothesis has been formulated as follow.

Hypothesis 1. Work design is positively related to burnout

Mindfulness significantly benefits clinical and non-clinical populations across all dimensions of physical and psychological well-being. In addition, the increasing time spent at work combined with the stressors commonly present in employment settings make exploring the role of mindfulness in the workplace more relevant than ever (Schultz *et al*., 2015).

One of the most relevant factors in the study of mindfulness in the workplace is the perception that one has of the work environment and of stressful factors within that environment, how they are perceived and the meaning that is given to the demands of the job. In the long run, these perceptions and meanings are more important than the work pressures themselves. People's problems are due not so much to the events that happen to them, but to the meaning they give to those events, that is, the meaning they attribute to work stressors and how they deal with them (Gonzáles and Neves, 2015; Oblitas, 2017).

This research aims to provide new evidence on the effect of mindfulness on some of the variables of work design and the benefits of mindfulness in reducing stress levels. Therefore, hypotheses 2, 3, and 4 have been formulated as follows:

Hypothesis 2. Awareness modulates work design and burnout.

Hypothesis 3. Acceptance modulates work design and burnout.

TABLE III
NETWORK MAP OF RELEVANT AUTHORS

Author	Documents	Citations
Jennings, Patricia A	16	1448
Epstein, Ronald M.	4	1321
Krasner, Michael S.	3	1178
Quill, Timothy E.	2	1171
Suchman, Anthony L.	2	1171
Roeser, Robert W.	9	1065
Beckman, Howard	1	1005

Source: Web of Science using VOSviewer.

Hypothesis 4. Awareness and acceptance modulate work design and burnout.

Method

A total of 400 workers from various sectors in Spain participated in this study, including both men and women. The sample size was determined to ensure sufficient statistical power for detecting significant relationships, while also being representative of the diverse workforce in Spain. The demographic characteristics of the sample were as follows: 53.81% were married or in a common-law partnership, 31.39% were single, 14.76% were divorced, and 1.04% were widowed. Regarding economic sectors, 10.81% worked in the primary sector, 16.63% in the secondary sector, and 72.57% in the tertiary sector. The participants' professional roles were distributed as follows: 28.4% in management, 58.2% in middle management, 11.6% in general personnel, and 1.8% in other positions. This broad representation across sectors and professional roles ensures the generalizability of the findings across different work environments.

The Maslach Burnout Inventory - General Survey (MBI-GS; Salanova *et al*., 2000b; Schaufeli *et al*., 1996) was used to measure burnout. This instrument consists of 15 items across three subscales: Exhaustion (EX) with five items (alpha= 0.87), Cynicism (CY) with four items (alpha= 0.85), and Professional Efficacy (PE) with six items (alpha= 0.78). These subscales have demonstrated strong reliability, making the MBI-GS an appropriate tool for assessing burnout in diverse work settings.

The Work Design Questionnaire (Morgeson and Humphrey, 2006) measures four general dimensions of work: Nine dimensions and 27 items from the Spanish version were selected (Bayona *et al*., 2015). Response options consist of a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree).

To measure task characteristics (alpha = 0.79), we included: autonomy (alpha= 0.77); task importance (alpha= 0.69); and job feedback (alpha= 0.77).

Knowledge characteristics (six items; alpha = 0.82) included information processing (alpha= 0.78) and skill range (alpha= 0.77).

Social characteristics (alpha= 0.77) included social support (alpha= 0.69) and feedback from others (alpha= 0.77).

Characteristics of the work context (alpha= 0.73) included physical demands (alpha= 0.88) and working conditions (alpha= 0.67).

The Philadelphia Mindfulness Scale-14 (PHLMS; Cardaciotto *et al*., 2008) is a brief 20-item self-report instrument that assesses awareness of the present moment and acceptance. The response format is presented on a 5-point Likert scale, ranging from 1 (never) to 5 (very often). Alpha is 0.86 for the acceptance subscale and 0.81 for the awareness subscale.

Non-probability sampling, also known as accidental random sampling (Kerlinger, 2001), was used to obtain the sample. All participants were informed about the purpose of the study and their responses were treated confidentially. Anonymity and confidentiality were guaranteed in all data processing procedures. All subjects participated voluntarily without financial compensation.

Several hierarchical multiple regression analyses were performed to test the hypotheses. As described by Cohen and Cohen (1983), the lower order variables were introduced first and then the higher order terms. Random coefficient models were used to examine whether the variables moderated the relationships. The independent and moderating variables were classified into high and low values. The representation of these regression equations shows the interaction between the variables. Furthermore, the effect size for the random coefficients model was estimated following the procedure recommended by Zohar and Luria (2005) and Hofmann *et al*. (2003). This method uses ordinary least squares (OLS) regression to calculate interactions; therefore, although the assumed independence of the error terms is violated, the overall values of R^2 present an unbiased assessment

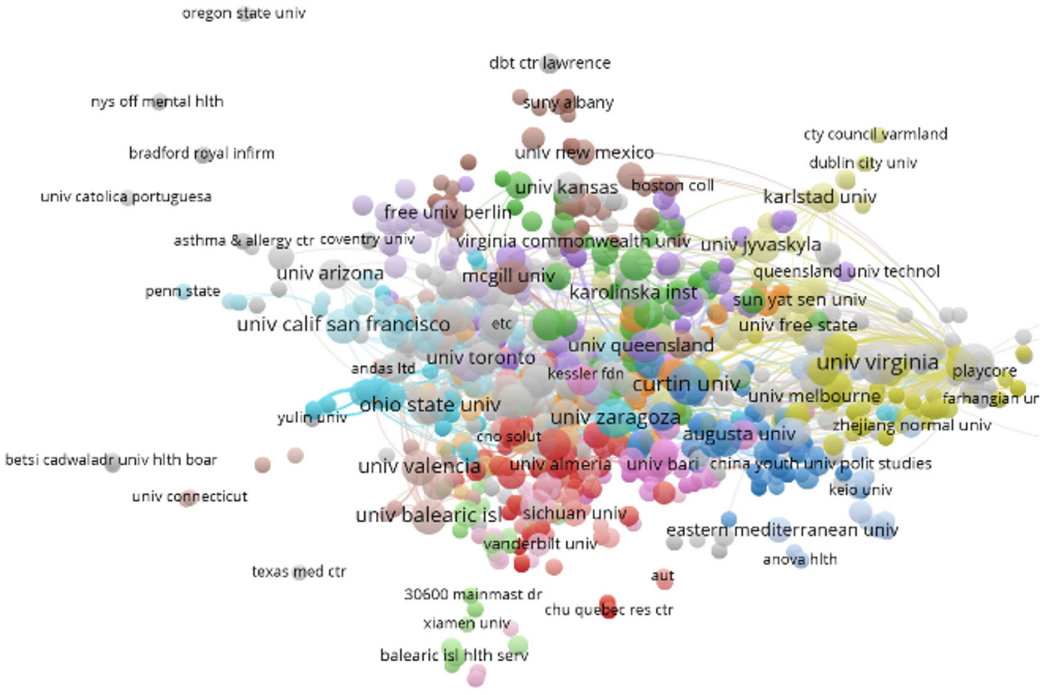

Figure 4. Network map of the most relevant universities. Source: Web of Science using VOSviewer.

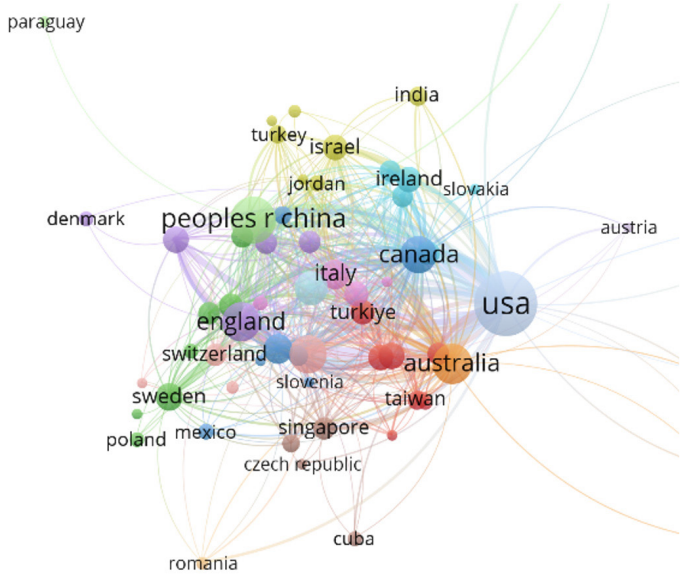

Figure 5. Network map of the most relevant countries. Source: Web of Science using VOSviewer.

of the percentage of variance explained by the moderation effect. The data were analysed using the statistical package SPSS version 23.0 for Windows.

Results

Table IV shows the results of a hierarchical regression in which autonomy and mindfulness were predictors of burnout. Explained variance can be observed for exhaustion (0.163), cynicism (0.127), and self-efficacy (0.360). Exhaustion was predicted by acceptance (β = -0.399; p = 0.000) and by the combination of autonomy and awareness (β= -0.165; p = 0.003). Cynicism was significantly predicted by three variables: age (β= -0.109; p= 0.017), autonomy (β= -0.185; p= 0.000), and acceptance (β= 0.289; p= 0.000). Finally, self-efficacy was associated with several variables: age (β= 0.156; p= 0.001), autonomy (β= 0.297; p= 0.000), awareness (β= 0.396; p= 0.000), and with the combination of autonomy and acceptance (β= 0.112; p = 0.022), awareness and acceptance (β= 0.151; p= 0.001), and autonomy plus awareness and acceptance (β= -0.131; p = 0.036).

Table V shows the hierarchical regression in which task significance and mindfulness were predictors of burnout. Explained variance is present for exhaustion (0.152), cynicism (0.115), and self-efficacy (0.311). The exhaustion variable was predicted by acceptance (β= -0.402; p = 0.000). Cynicism was significantly related to several variables: age (β= -0.109; p = 0.017), acceptance (β= -0.316; p= 0.000), and task significance combined with awareness (β= -0.119; p= 0.044), while self-efficacy was related to age (β= 0.156; p= 0.001), task significance (β= 0.154; p= 0.000), awareness (β= 0.437; p= 0.000), awareness plus acceptance (β= 0.214; p= 0.001), and task significance combined with awareness and acceptance (β= -0.220; p= 0.001).

Table VI shows the results of a hierarchical regression in which feedback from the job and mindfulness predict burnout. Explained variance can be recognized for exhaustion (0.157), cynicism (0.132), and self-efficacy (0.347). Exhaustion was predicted by

TABLE IV
HIERARCHICAL REGRESSION ANALYSIS FOR AUTONOMY AND MINDFULNESS AS PREDICTORS OF ORGANIZATIONAL BURNOUT

	Exhaustion			Cynicism			Self-efficacy		
	B	SE	p	B	SE	p	B	SE	p
Step 1									
Sex (dummy)	-0.051	0.137	0.266	0.032	0.126	0.481	-0.028	0.097	0.535
Age	-0.019	0.068	0.673	-0.109	0.062	0.017	0.156	0.048	0.001
Step 2									
Autonomy	-0.075	0.065	0.085	-0.185	0.061	0.000	0.297	0.042	0.000
Awareness	-0.027	0.068	0.556	-0.021	0.064	0.660	0.396	0.044	0.000
Acceptance	-0.399	0.066	0.000	0.289	0.062	0.000	0.023	0.043	0.576
Step 3									
Autonomy x awareness	-0.077	0.064	0.164	0.037	0.060	0.514	0.112	0.040	0.022
Autonomy x acceptance	-0.165	0.053	0.003	-0.084	0.050	0.138	-0.042	0.034	0.386
Awareness x acceptance	0.035	0.050	0.493	0.042	0.048	0.424	0.151	0.032	0.001
Step 4									
Autonomy x awareness x acceptance	0.019	0.031	0.542	-0.063	0.029	0.386	-0.131	0.019	0.036
R^2	0.163			0.127			0.360		
R^2 change step 1	0.003			0.013			0.025		
R^2 change step 2	0.156			0.113			0.285		
R^2 change step 3	0.019			0.016			0.056		
R^2 change step 4	0.001			0.001			0.006		

B: standardized coefficients; SE: standard error; sex: 1 man; 0 woman.

TABLE V
HIERARCHICAL REGRESSION ANALYSIS FOR TASK SIGNIFICANCE AND MINDFULNESS AS PREDICTORS OF ORGANIZATIONAL BURNOUT

	Exhaustion			Cynicism			Self-efficacy		
	B	SE	p	B	SE	p	B	SE	p
Step 1									
Sex (dummy)	-0.051	0.137	0.266	0.032	0.126	0.481	-0.028	0.097	0.535
Age	-0.019	0.680	0.673	-0.109	0.062	0.017	0.156	0.048	0.001
Step 2									
Task significance	-0.015	0.065	0.731	-0.185	0.061	0.000	0.297	0.042	0.000
Awareness	-0.048	0.067	0.295	-0.039	0.064	0.339	0.437	0.046	0.000
Acceptance	-0.402	0.067	0.000	-0.316	0.063	0.000	0.059	0.045	0.164
Step 3									
Task significance x awareness	0.011	0.069	0.839	0.049	0.065	0.370	0.003	0.045	0.948
Task significance x acceptance	-0.109	0.065	0.060	-0.119	0.061	0.044	-0.068	0.043	0.193
Awareness x acceptance	-0.008	0.051	0.880	0.007	0.048	0.893	0.214	0.034	0.000
Step 4									
Task S x awareness x acceptance	0.089	0.036	0.207	0.034	0.034	0.634	-0.220	0.023	0.001
R^2	0.152			0.115			0.331		
R^2 change step 1	0.003			0.013			0.025		
R^2 change step 2	0.151			0.098			0.225		
R^2 change step 3	0.010			0.021			0.056		
R^2 change step 4	0.003			0.000			0.017		

B: standardized coefficients; SE: standard error; sex: 1 man; 0 woman.

TABLE VI
HIERARCHICAL REGRESSION ANALYSIS FOR FEEDBACK FROM JOB AND MINDFULNESS AS PREDICTORS OF ORGANIZATIONAL BURNOUT

	Exhaustion			Cynicism			Self-efficacy		
	B	SE	p	B	SE	p	B	SE	p
Step 1									
Sex (dummy)	-0.051	0.137	0.266	0.032	0.126	0.481	-0.028	0.097	0.535
Age	-0.019	0.068	0.673	-0.109	0.062	0.017	0.156	0.048	0.001
Step 2									
Feedback from job	-0.036	0.067	0.428	-0.190	0.063	0.000	0.252	0.044	0.000
Awareness	-0.035	0.069	0.453	-0.011	0.065	0.811	0.396	0.046	0.000
Acceptance	-0.407	0.066	0.000	0.315	0.062	0.000	0.060	0.044	0.144
Step 3									
Feedback x awareness	-0.164	0.057	0.006	-0.150	0.053	0.013	-0.010	0.036	0.844
Feedback x acceptance	-0.083	0.067	0.147	-0.007	0.062	0.898	0.108	0.043	0.034
Awareness x acceptance	0.018	0.053	0.739	0.027	0.050	0.620	0.169	0.034	0.001
Step 4									
Feedback x awareness x acceptance	0.066	0.033	0.408	-0.031	0.031	0.703	-0.278	0.021	0.000
R^2	0.157			0.132			0.347		
R^2 change step 1	0.003			0.013			0.025		
R^2 change step 2	0.152			0.113			0.259		
R^2 change step 3	0.017			0.021			0.053		
R^2 change step 4	0.001			0.000			0.021		

B: standardized coefficients; SE: standard error; sex: 1 man; 0 woman.

acceptance (β= -0.407; p= 0.000) and by the combination of feedback and awareness (β= -0.164; p= 0.006). Similarly, cynicism was correlated with several variables: age (β= -0.109; p= 0.017), feedback from the job (β= -0.190; p= 0.000), acceptance (β= -0.315; p= 0.000), and feedback combined with awareness (β= -0.150; p = 0.013). Self-efficacy was found to be related to age (β= 0.156; p= 0.001), feedback from the job (β= 0.252; p= 0.000), awareness (β= 0.396; p= 0.000), feedback plus acceptance (β= 0.108; p= 0.034), awareness plus acceptance (β= 0.169; p= 0.001), and feedback, awareness, and acceptance combined (β= -0.278; p= 0.000).

Table VII shows the hierarchical regression in which information processing and mindfulness were predictors of burnout. Explained variance is present for exhaustion (0.162), cynicism (0.091), and self-efficacy (0.334). Exhaustion was predicted by information processing (β= 0.095; p= 0.029), acceptance (β= 0.406; p= 0.000), and by the combination of information processing and awareness (β= -0.131; p= 0.013). However, based on the results of the explained variance for cynicism, the hypothesized models for burnout correlate with the variables age (β= -0.109; p= 0.017) and acceptance (β= -0.300; p= 0.000). Finally, self-efficacy was found to be linked to age (β= 0.156; p= 0.001), information processing (β= 0.220; p= 0.000), awareness (β= 0.413; p= 0.000), information processing plus awareness (β= -0.119; p= 0.012), awareness plus acceptance (β= 0.173; p= 0.000), and information processing, awareness, and acceptance combined (β= -0.170; p= 0.005).

Table VIII shows the hierarchical regression in which skill variety, information processing, and mindfulness predict burnout. Explained variance can be distinguished for exhaustion (0.147), cynicism (0.130), and self-efficacy (0.356). Exhaustion was predicted by acceptance (β= -0.404; p= 0.000), while cynicism was related to age (β= -0.109; p= 0.017), skill variety (β= -0.170; p= 0.000), and acceptance (β= -0.299; p= 0.000). Self-efficacy was associated with age (β= 0.156; p= 0.001), skill variety (β= 0.310; p= 0.000), awareness (β= 0.390; p= 0.000), and awareness plus acceptance (β= 0.125; p= 0.007).

Table IX shows the hierarchical regression in which social support, information processing, and mindfulness predict burnout. Explained variance can be distinguished for exhaustion (0.193), cynicism (0.127), and self-efficacy (0.323). Exhaustion was predicted by social support (β= -0.167; p= 0.000), acceptance (β= -0.411; p= 0.000), and by the combination of social support and awareness (β= -0.172; p= 0.008). Cynicism was significantly predicted by three variables: age (β= -0.109; p= 0.017), social support (β= -0.156; p= 0.001), acceptance (β= -0.310; p= 0.000), and social support combined with awareness (β= 0.056; p= 0.015). Self-efficacy was found to be associated with age (β= -0.156; p= 0.001), social support (β= 0.195; p = 0.000), awareness (β= 0.410; p= 0.000), awareness combined with acceptance (β= 0.136; p= 0.007), and social support combined with awareness and acceptance (β= -0.175; p= 0.017).

Table X shows the hierarchical regression in which feedback from others, information processing, and mindfulness were predictors of burnout. Explained variance can be observed for exhaustion (0.160), cynicism (0.122), and self-efficacy (0.313). Exhaustion was predicted by acceptance (β= -0.408; p= 0.000), while cynicism was correlated with the variables age (β= -0.109; p= 0.017), feedback from others (β= -0.193; p= 0.000), and

TABLE VII
HIERARCHICAL REGRESSION ANALYSIS FOR INFORMATION PROCESSING AND MINDFULNESS AS PREDICTORS OF ORGANIZATIONAL BURNOUT

	Exhaustion			Cynicism			Self-efficacy		
	B	SE	p	B	SE	p	B	SE	p
Step 1									
Sex (dummy)	-0.051	0.137	0.266	0.032	0.126	0.481	-0.028	0.097	0.535
Age	-0.019	0.068	0.673	-0.109	0.062	0.017	0.156	0.048	0.001
Step 2									
Info processing	0.095	0.064	0.029	-0.065	0.062	0.151	0.220	0.043	0.000
Awareness	-0.068	0.068	0.139	-0.049	0.065	0.302	0.413	0.046	0.000
Acceptance	-0.406	0.066	0.000	-0.300	0.063	0.000	0.037	0.044	0.375
Step 3									
Info processing x awareness	-0.131	0.058	0.013	-0.041	0.056	0.452	-0.119	0.037	0.012
Info processing x acceptance	-0.089	0.063	0.085	0.060	0.061	0.264	0.032	0.041	0.497
Awareness x acceptance	0.021	0.051	0.691	0.025	0.049	0.649	0.173	0.033	0.000
Step 4									
Info proc. x awareness x acceptance	0.066	0.034	0.328	-0.038	0.033	0.595	-0.170	0.022	0.005
R^2	0.162			0.091			0.334		
R^2 change step 1	0.003			0.013			0.025		
R^2 change step 2	0.160			0.085			0.248		
R^2 change step 3	0.014			0.009			0.062		
R^2 change step 4	0.002			0.001			0.011		

B: standardized coefficients; SE: standard error; sex: 1 man; 0 woman.

TABLE VIII
HIERARCHICAL REGRESSION ANALYSIS FOR SKILL VARIETY AND MINDFULNESS AS PREDICTORS OF ORGANIZATIONAL BURNOUT

	Exhaustion			Cynicism			Self-efficacy		
	B	SE	p	B	SE	p	B	SE	p
Step 1									
Sex (dummy)	-0.051	0.137	0.266	0.032	0.126	0.481	-0.028	0.097	0.535
Age	-0.019	0.068	0.673	-0.109	0.062	0.017	0.156	0.048	0.001
Step 2									
Skill variety	0.005	0.065	0.904	-0.170	0.061	0.000	0.310	0.042	0.000
Awareness	-0.046	0.068	0.316	0.023	0.064	0.627	0.390	0.044	0.000
Acceptance	-0.404	0.066	0.000	-0.299	0.062	0.000	0.038	0.043	0.350
Step 3									
Skill variety x awareness	-0.113	0.057	0.085	-0.040	0.053	0.545	-0.113	0.036	0.358
Skill variety x acceptance	-0.042	0.069	0.511	0.120	0.065	0.062	0.051	0.044	0.049
Awareness x acceptance	0.020	0.052	0.701	0.037	0.048	0.497	0.125	0.033	0.007
Step 4									
Skill variety x awareness x acceptance	0.066	0.031	0.437	-0.054	0.029	0.529	-0.100	0.020	0.174
R^2	0.147			0.130			0.356		
R^2 change step 1	0.003			0.013			0.025		
R^2 change step 2	0.151			0.108			0.293		
R^2 change step 3	0.008			0.024			0.047		
R^2 change step 4	0.001			0.001			0.002		

B: standardized coefficients; SE: standard error; sex: 1 man; 0 woman.

TABLE IX
HIERARCHICAL REGRESSION ANALYSIS FOR SOCIAL SUPPORT AND MINDFULNESS AS PREDICTORS OF ORGANIZATIONAL BURNOUT

	Exhaustion			Cynicism			Self-efficacy		
	B	SE	p	B	SE	p	B	SE	p
Step 1									
Sex (dummy)	-0.051	0.137	0.266	0.032	0.126	0.481	-0.028	0.097	0.535
Age	-0.019	0.068	0.673	-0.109	0.062	0.017	-0.156	0.048	0.001
Step 2									
Social support	0.167	0.065	0.000	-0.156	0.063	0.001	0.195	0.045	0.000
Awareness	0.001	0.068	0.984	-0.020	0.065	0.681	0.410	0.046	0.000
Acceptance	-0.411	0.065	0.000	-0.310	0.063	0.000	0.052	0.045	0.211
Step 3									
Social support x awareness	-0.172	0.059	0.008	0.056	0.059	0.015	-0.103	0.037	0.043
Social support x acceptance	0.037	0.066	0.527	-0.276	0.064	0.328	0.103	0.040	0.073
Awareness x acceptance	-0.021	0.054	0.706	-0.157	0.054	0.813	0.136	0.035	0.007
Step 4									
Social support x awareness x acceptance	0.111	0.033	0.187	0.041	0.030	0.617	-0.175	0.021	0.017
R^2	0.193			0.127			0.323		
R^2 change step 1	0.003			0.013			0.025		
R^2 change step 2	0.177			0.103			0.237		
R^2 change step 3	0.026			0.027			0.066		
R^2 change step 4	0.003			0.000			0.008		

B: standardized coefficients; SE: standard error; sex: 1 man; 0 woman.

TABLE X
HIERARCHICAL REGRESSION ANALYSIS FOR FEEDBACK FROM OTHERS AND MINDFULNESS AS PREDICTORS OF ORGANIZATIONAL BURNOUT

	Exhaustion			Cynicism			Self-efficacy		
	B	SE	p	B	SE	p	B	SE	p
Step 1									
Sex (dummy)	-0.051	0.137	0.266	0.032	0.126	0.481	-0.028	0.097	0.535
Age	-0.019	0.068	0.673	-0.109	0.062	0.017	0.156	0.048	0.001
Step 2									
Feedback from others	0.112	0.064	0.009	-0.193	0.060	0.000	0.133	0.044	0.001
Awareness	-0.023	0.067	0.613	-0.027	0.063	0.562	0.440	0.046	0.000
Acceptance	-0.408	0.066	0.000	-0.309	0.062	0.000	0.046	0.045	0.273
Step 3									
Feedback from others x awareness	-0.084	0.061	0.083	-0.055	0.057	0.265	-0.055	0.040	0.213
Feedback from others x acceptance	0.001	0.062	0.976	0.030	0.059	0.530	0.074	0.041	0.085
Awareness x acceptance	0.023	0.048	0.647	0.038	0.045	0.450	0.213	0.032	0.000
Step 4									
Feedback from others x awareness x acceptance	0.041	0.040	0.502	-0.022	0.037	0.725	-0.161	0.026	0.004
R^2	0.160			0.122			0.313		
R^2 change step 1	0.003			0.013			0.025		
R^2 change step 2	0.163			0.117			0.219		
R^2 change step 3	0.009			0.008			0.069		
R^2 change step 4	0.001			0.000			0.012		

B: standardized coefficients; SE: standard error; sex: 1 man; 0 woman.

acceptance (β= -0.309; p = 0.000). Self-efficacy was associated with age (β= 0.156; p= 0.001), feedback from others (β= 0.133; p= 0.001), awareness (β= 0.440; p = 0.000), awareness combined with acceptance (β= 0.213; p= 0.000), and feedback combined with awareness and acceptance (β= -0.161; p= 0.004).

Table XI shows the hierarchical regression in which physical demands, information processing, and mindfulness were predictors of burnout. Explained variance can be seen for exhaustion (0.184), cynicism (0.087), and self-efficacy (0.287). Exhaustion was predicted by physical demands (β= 0.213; p= 0.000) and acceptance (β= -0.368; p= 0.000). Cynicism was predicted by age (β= -0.109; p= 0.017) and acceptance (β= -0.288; p= 0.000). Self-efficacy was associated with age (β= 0.156; p= 0.001), awareness (β= 0.467; p= 0.000), awareness combined with acceptance (β= 0.278; p= 0.000), and physical demand combined with awareness and acceptance (β= -0.109; p= 0.024).

Table XII shows the hierarchical regression in which work conditions, information processing, and mindfulness were predictors of burnout. Explained variance can be seen for exhaustion (0.191), cynicism (0.107), and self-efficacy (0.329). Exhaustion was related to work conditions (β= -0.194; p= 0.000) and acceptance (β= -0.403; p= 0.000). Cynicism was correlated with age (β= -0.109; p= 0.017), work conditions (β= -0.113; p= 0.011), and acceptance (β= -0.300; p= 0.000). Self-efficacy was associated with age (β= 0.156; p= 0.001), work conditions (β= 0.241; p= 0.000), awareness (β= 0.426; p= 0.000), work conditions combined with awareness (β= -0.121; p= 0.023), and awareness combined with acceptance (= 0.152; p= 0.002).

Discussion

As evidenced by the results presented, the first hypothesis was partially supported. Job characteristics, including autonomy, task significance, job feedback, information processing, skill variety, social support, feedback from others, physical demands, and working conditions, were examined in relation to burnout. It was found that autonomy and social support acted as negative predictors of burnout. This finding is consistent with previous research, including that of Ballesteros (2012), which demonstrated that burnout is prevalent across various occupational fields and manifests in different ways through emotional exhaustion and depersonalization. These forms of burnout are often triggered by job stressors and are exacerbated by insufficient job resources. Emotional exhaustion, in particular, is a key component of burnout, as it leads individuals to feel mentally and physically depleted, which, as Ballesteros suggests, results in maladaptive coping strategies like depersonalization and disengagement.

The negative correlation between social support and burnout is also consistent with a substantial body of research. Gil-Monte (2000) and Gil-Monte and Peiró (1997) found that a lack of social support at work could trigger or amplify the effects of burnout, leading to significant emotional strain. Conversely, good social support, whether from colleagues, supervisors, or organizational structures, can act as a buffer against the development of burnout (Houkes *et al*., 2003; Karasek and Theorell, 1990; Nissly *et al*., 2005). Social support provides employees with resources that help them cope with work-related stress, whether through emotional encouragement, informational

TABLE XI
HIERARCHICAL REGRESSION ANALYSIS FOR PHYSICAL DEMANDS AND MINDFULNESS AS PREDICTORS OF ORGANIZATIONAL BURNOUT

	Exhaustion			Cynicism			Self-efficacy		
	B	SE	p	B	SE	p	B	SE	p
Step 1									
Sex (dummy)	-0.051	0.137	0.266	0.032	0.126	0.481	-0.028	0.097	0.535
Age	-0.019	0.068	0.673	-0.109	0.062	0.017	0.156	0.048	0.001
Step 2									
Physical demands	0.213	0.062	0.000	0.078	0.061	0.077	-0.009	0.044	0.833
Awareness	-0.055	0.065	0.209	-0.068	0.063	0.140	0.467	0.046	0.000
Acceptance	-0.368	0.065	0.000	-0.288	0.064	0.000	0.040	0.046	0.361
Step 3									
Physical demands x awareness	0.000	0.067	0.995	-0.029	0.065	0.544	0.027	0.045	0.530
Physical demands x acceptance	0.066	0.065	0.883	-0.022	0.063	0.633	-0.002	0.004	0.969
Awareness x acceptance	0.034	0.045	0.471	0.048	0.044	0.330	0.278	0.031	0.000
Step 4									
Physical demands x awareness x acceptance	-0.003	0.046	0.948	-0.009	0.045	0.869	-0.109	0.031	0.024
R^2	0.184			0.087			0.287		
R^2 change step 1	0.003			0.013			0.025		
R^2 change step 2	0.195			0.087			0.203		
R^2 change step 3	0.001			0.003			0.065		
R^2 change step 4	0.000			0.000			0.008		

B: standardized coefficients; SE: standard error; sex: 1 man; 0 woman.

TABLE XII
HIERARCHICAL REGRESSION ANALYSIS FOR WORK CONDITIONS AND MINDFULNESS PREDICTORS OF ORGANIZATIONAL BURNOUT

	Exhaustion			Cynicism			Self-efficacy		
	B	SE	p	B	SE	p	B	SE	p
Step 1									
Sex (dummy)	-0.051	0.137	0.266	0.032	0.126	0.481	-0.028	0.097	0.535
Age	0.019	0.068	0.673	-0.109	0.062	0.017	0.156	0.048	0.001
Step 2									
Work conditions	-0.194	0.063	0.000	-0.113	0.061	0.011	0.241	0.042	0.000
Awareness	-0.012	0.066	0.783	-0.046	0.064	0.328	0.426	0.045	0.000
Acceptance	-0.403	0.065	0.000	-0.300	0.063	0.000	0.040	0.044	0.331
Step 3									
Work conditions x awareness	-0.063	0.059	0.278	-0.096	0.058	0.116	-0.121	0.039	0.023
Work conditions x acceptance	0.065	0.065	0.225	0.049	0.063	0.386	0.028	0.043	0.564
Awareness x acceptance	0.042	0.051	0.426	0.022	0.050	0.691	0.152	0.034	0.002
Step 4									
Work conditions x awareness x acceptance	-0.035	0.036	0.664	0.035	0.035	0.681	-0.124	0.024	0.094
R^2	0.191			0.107			0.329		
R^2 change step 1	0.003			0.013			0.025		
R^2 change step 2	0.187			0.094			0.259		
R^2 change step 3	0.016			0.017			0.053		
R^2 change step 4	0.000			0.000			0.004		

B: standardized coefficients; SE: standard error; sex: 1 man; 0 woman.

guidance, or instrumental assistance. The present study's results underscore the importance of fostering a supportive work environment as a means of mitigating burnout, reinforcing the notion that organizations should actively cultivate social networks and support systems within the workplace.

Regarding Hypothesis 2, the results partially supported the proposition that mindfulness modulates job characteristics, particularly feedback from others, skill variety, and burnout. These findings align with previous studies, such as those by Goilean, Gracia, and Subirats (2020), which highlighted that mindfulness enhances resilience to workplace stressors by fostering greater awareness and adaptability. Mindfulness, through its emphasis on present-moment awareness and non-judgmental acceptance, enables employees to process job-related challenges more effectively and avoid the mental traps of worry and rumination. Marconi *et al.* (2019) also found that mindfulness strengthens employees' ability to manage stress, enhancing their coping strategies while reducing emotional reactivity. This study's results reinforce the idea that mindfulness serves as a powerful modulator of the relationship between job characteristics and burnout, suggesting that incorporating mindfulness practices into organizational routines could be beneficial in preventing or reducing burnout.

Hypothesis 3 was partially confirmed, with social support emerging as a significant negative predictor of burnout. The results support the work of Shamsi *et al.* (2021), who emphasized the importance of social support and acceptance from colleagues and teams, especially in high-stress or crisis situations. Their research indicates that these factors are critical for maintaining employee well-being and motivation, particularly in times of uncertainty. A supportive work environment not only reduces the risk of burnout but also fosters a sense of belonging and engagement among employees, which enhances overall productivity and job satisfaction. In this study, social support appeared to play a moderating role between mindfulness and burnout, suggesting that a combination of mindfulness practices and a supportive work environment may offer the most effective approach to combating burnout. This aligns with findings from Schellekens *et al.* (2017) and Swickert *et al.* (2019), who demonstrated that perceived social support can amplify the positive effects of mindfulness on psychological well-being, making it a key factor in promoting mental health at work.

Finally, Hypothesis 4 was partially supported, as the study revealed that mindfulness significantly modulates dimensions of job characteristics, social support, and burnout. Previous research by García *et al.* (2000) has shown that mindfulness, through increased awareness and acceptance, influences key workplace factors, including job demands and social interactions, thereby reducing the risk of burnout. Furthermore, multiple studies have highlighted the positive effects of mindfulness in reducing burnout symptoms (Hülsheger *et al.*, 2013; Irving *et al.*, 2009; Virgili, 2015). This study's findings add to this body of evidence by demonstrating that mindfulness can serve as a protective factor against burnout, particularly when it interacts with other organizational factors such as social support and job autonomy.

The results of this study contribute to a growing body of literature that underscores the importance of mindfulness in the workplace as a tool for mitigating burnout. While the results partially support the hypotheses, further research is needed to refine these findings and explore additional factors that may influence the relationship between job characteristics, mindfulness, and burnout. Future studies could investigate the long-term effects of mindfulness interventions, particularly through longitudinal designs, and explore how different professional sectors or job roles might influence the effectiveness of mindfulness practices. Additionally, examining the role of organizational culture and leadership in facilitating mindfulness practices could provide valuable insights for developing effective workplace interventions aimed at reducing burnout and enhancing employee well-being.

Conclusions

The findings of this research indicate that not all work characteristics—such as skill variety, feedback from others, information processing, and feedback from the job—had a direct influence on burnout. Interestingly, some non-significant findings revealed that variables like social support and autonomy were positively correlated with both mindfulness and burnout, suggesting a potential parallel relationship. However, further research is needed to more thoroughly explore and validate this connection.

Our findings highlight that job characteristics and burnout outcomes are significantly moderated by mindfulness. This provides partial support for the idea that mindfulness has practical applications in reducing burnout, particularly when considering job characteristics. Specifically, mindfulness appears to play a key role in promoting occupational health by mitigating burnout. As such, organizations should prioritize the integration of mindfulness practices into their workplace culture to improve employee well-being and performance.

Moreover, mindfulness should be factored into organizational interventions designed to address and alleviate the challenges faced by employees in today's work environments. The evidence from this study underscores mindfulness as an important tool in improving the occupational health of workers by reducing burnout, especially in relation to job characteristics.

This study, however, has several limitations. Future research could segment the sample to explore potential differences across various professional activities, providing more targeted insights. Additionally, examining causal relationships over time through longitudinal studies would deepen our understanding of how mindfulness interacts with job characteristics and burnout. Such research would also allow for a more comprehensive exploration of the long-term benefits of mindfulness in the workplace.

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