Journal of Public Health
https://doi.org/10.1007/s10389-024-02223-0

ORIGINAL ARTICLE

Burnout as a multidimensional phenomenon: how can workplaces be healthy environments?

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Received: 3 August 2023 / Accepted: 22 February 2024

Abstract

Purpose Burnout was already a significant problem before the pandemic, but in the aftermath became a serious concern and a public health and occupational health priority. This study had two aims. First, we investigated how different healthy workplace dimensions and other health individual-level variables are related to burnout. Second, we examined differences in terms of presenteeism, absenteeism, and quality of life between employees who report burnout symptoms and those who do not.

Methods Participants were 1702 Portuguese employees from various organizations; 69.68% were female, age ranged from 18 to 72 years (mean = 43.25 years, SD = 10.40). Almost half of the participants (49.9%; 851 participants) reported having at least one burnout symptom.

Results Participants reported that they have felt exhausted (43.7%), irritated (34.5%) and sad (30.5%) always or very often in the last 4 weeks. Regression analysis revealed that the global score on burnout symptoms was negatively related to leadership engagement, psychosocial work environment, personal health resources, health behaviours, and satisfaction with salary. In addition, the global score on burnout symptoms was positively related to worker involvement, enterprise community involvement, perceived stress, and screen time at work. Furthermore, females tend to report a higher level of burnout symptoms compared to males. In addition, burnout has an impact on sickness absenteeism, presenteeism, and quality of life.

Conclusions Our findings have an important contribution to understanding and promoting a healthier work environment, and reinforce the need for measures and policies to promote mental health, manage stress, and prevent burnout in the workplace.

Keywords Burnout · Healthy workplace · Well-being · Occupational health · Sustainability

This work is framed within project UIDB/05380/2020 under support of FCT—Fundação para a Ciência e a Tecnologia, I.P.

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Introduction

Common ground

The COVID-19 pandemic brought about a climate of fear, uncertainty, and death, associated with changes in family and work patterns, namely linked to remote work or teleworking, instability, unemployment, or low income. If burnout was a reality before the pandemic, a significant problem for many modern-day workers (Rapp et al. 2021), now it should be considered a serious public health and occupational health priority (Gabriel and Aguinis 2022; Gaspar et al. 2021).

Published online: 20 March 2024

Complications

The research on the impact of telework on health outcomes is scarce. In an attempt to the assess the evidence for associations between telework from home and health-related outcomes in employed office workers, Lunde et al. (2022) found that this research could not be meta-analyzed, as few studies, with many having suboptimal designs and/or other methodological issues, investigating a limited number of outcomes, resulted in the body of evidence for the detected outcome categories being graded either as low or very low.

Course of action To overcome the existing gaps, the aim of this study was two-fold. First, it investigated how different healthy workplace dimensions and other health individual-level variables are related to burnout. Second, it examined differences in terms of presenteeism, absenteeism, and quality of life between employees who report burnout symptoms and those who do not.

Contributions A robust model for assessing, monitoring (Gaspar et al. 2022), and reporting on the benefits of organisational investment in health and wellbeing can improve understanding of the importance of this investment for employers and society as a whole (Adlakha 2019).

Theoretical framework

Burnout is a disorder that results from continuous and chronic stress in the workplace, associated with psychosocial risks at work. The following conceptual framework characterises burnout and defines a healthy work environment and its various dimensions, namely the psychosocial environment and mental health. Next, factors emerging from the work environment and associated with health and performance at work are characterised, such as teleworking, presenteeism, absenteeism, and salary satisfaction.

Burnout

The World Health Organization (2019) included burnout in the 11th Revision of the International Classification of Diseases (ICD-11) as an occupational phenomenon. In this classification, burnout is considered a syndrome conceptualized as resulting from chronic workplace stress that has not been successfully managed. This syndrome is characterized by three dimensions: (1) feelings of energy depletion or exhaustion, (2) increased mental distance from one's job, or feelings of negativism or cynicism related to one's job, and (3) reduced professional efficacy (Maslach and Jackson 1981; Maslach 2003; Leiter and Maslach 2016).

Professionals with burnout feel emotionally exhausted, pessimistic, and withdrawn from work and other important aspects of their lives. Burnout syndrome is likely to occur in employees who feel overwhelmed and impaired with stress in the workplace, and especially in professions with relational contact with others, such as teachers, doctors, nurses, and people in the police force (Schaufeli and Enzmann 2020; Shirom and Ezrachi 2003).

Burnout has symptoms and consequences for physical, psychological, social, and environmental health (Ahola et al. 2010). Past research reveals that burnout hinders personal and organizational performance (e.g., Bakker et al. 2004; Cropanzano et al. 2003; Parker and Kulik 1995; Wright and Cropanzano 1998), teamwork, and working relationships (e.g., Mijakoski et al. 2018). Furthermore, it is associated with physical symptoms such as hypertension, muscle problems, and gastrointestinal problems (Salvagioni et al. 2022). Consistently, burnout has been closely linked to physical illness, mental health, presenteeism, and absenteeism (Ahola et al. 2008; Gabriel and Aguinis 2022; Glise et al. 2009).

Psychological symptoms such as emotional exhaustion, anxiety, irritability, sleep problems, and depression are also well documented (Goh et al. 2019; Renfrow 2020).

Emotional exhaustion is variably associated with absenteeism, intention to quit profession, and personal and family deterioration (Suner-Soler et al. 2014), and is the most studied dimension of the burnout syndrome (Mäkikangas et al. 2017; Salvagioni et al. 2017).

Besides emotional exhaustion, according to Maslach's Model, cynicism and lack of efficacy are the other two components of burnout. Leiter and Maslach (2016) propose patterns related to different profiles: Burnout (high on all three components), engagement (low on all three components), and then three more profiles in which the person is affected only on one of the components, that is *overextended* (high on exhaustion only), *disengaged* (high on cynicism only), and *ineffective* (high on inefficacy only).

Burnout and engagement are largely overlapping concepts due to the same underlying phenomena: energy, involvement, and efficacy (Maslach and Leiter 1997). The relationship between burnout and engagement can be explained to a great extent in terms of similar patterns of associations with job demands and job resources (Taris et al. 2017). Bakker and Costa (2014) show that chronic burnout is an important moderator of daily employee functioning. Chronic burnout strengthens the loss cycle of daily job demands, daily exhaustion, and daily self-undermining, whereas chronic burnout weakens the gain cycle of daily job resources, daily work engagement, and daily job crafting. Employees with

high levels of burnout need help to implement deep changes in their working conditions and health status. A meta-analysis by Glandorf et al. (2023) concluded that burnout was associated with athletes' health, with increases in negative mental health outcomes and decreases in positive mental health outcomes.

In the work context, there are risks referring to social, organizational, and work management aspects that can cause burnout (European Center for Disease Prevention and Control 2021), and consequently a detrimental impact on the organizations and the economy (Bailey 2020; Gaspar et al. 2023b).

Healthy workplace

Workers' health and the healthy workplace environment in the organisation should be understood from an ecological and systemic perspective (Gaspar et al. 2022). A comprehensive appraisal should include organizational factors, psychosocial work environment associated with factors of the relationship between the professional and the organisation, and individual worker biopsychosocial factors, as well as factors external to the workplace (Gaspar 2020a, b; Gaspar et al. 2021; Otto et al. 2020). One of the comprehensive frameworks and models that considers these factors is the WHO healthy workplace framework and model (Burton 2010).

In this perspective, a healthy workplace is "one in which workers and managers collaborate to use a continual improvement process to protect and promote the health, safety and well-being of workers and the sustainability of the workplace by considering the following, based on identified needs: health and safety concerns in the physical work environment; health, safety and well-being concerns in the psychosocial work environment including organization of work and workplace culture; personal health resources in the workplace; and ways of participating in the community to improve the health of workers, their families and other members of the community". In short, the physical work environment refers to the part of the workplace facility that can be detected by human or electronic senses, including the structure, air, machines, furniture, products, chemicals, materials, and processes that are present or that occur in the workplace, and which can affect the physical or mental safety, health, and well-being of workers. If the worker performs his or her tasks outdoors or in a vehicle, then that location is the physical work environment. The psychosocial work environment includes the organization of work and the organizational culture — the attitudes, values, beliefs, and practices that are demonstrated on a daily basis in the enterprise/organization, and which affect the mental and physical well-being of employees. These are sometimes generally referred to as workplace stressors, which may cause emotional or mental stress to workers. *Personal health resources* in the workplace means the supportive environment, health services, information, resources, opportunities, and flexibility an enterprise provides to workers to support or motivate their efforts to improve or maintain healthy personal lifestyle practices, as well as to monitor and support their ongoing physical and mental health. *Enterprise community involvement* comprises the activities, expertise, and other resources an enterprise engages in or provides to the social and physical community or communities in which it operates, and which affect the physical and mental health, safety, and well-being of workers and their families. It includes activities, expertise, and resources provided to the immediate local environment, but also the broader global environment (Burton 2010).

This model includes both content and process. Specifically, it comprises two core principles that are ongoing circumstances that must be tapped into at every stage of the process for implementing a healthy workplace programme (i.e., leadership engagement based on core values and ethics, and worker involvement), four avenues that define the content of a healthy workplace programme (i.e., the physical work environment, the psychosocial work environment, personal health resources in the workplace, and enterprise community involvement) and an eight-step iterative process for implementing a healthy workplace programme.

A healthy workplace is linked to higher job satisfaction, motivation, and job performance, as well as reduced turnover and healthcare costs for companies (Gaspar 2020a, b; Gaspar & Faia-Correia 2020).

Workplace factors associated with burnout

Telework

The accelerated development and widespread use of information and communication technology (ICT) produced in organizations a tremendous switch towards different business approaches. Especially with the occurrence of the Covid-19 global pandemic, the acceleration of the usage of ICT-based working tools offered the possibility for organizations and employees to adopt telework to enforce the social distancing needed to minimize the spread of the virus. Teleworking implies that employees work outside their professional office spaces in their home while keeping in touch with colleagues and managers by way of new information and communication technologies (Beauregard et al. 2019).

Although the COVID-19 pandemic has ended, previous studies suggest telework is here to stay on its own and as a part of a hybrid model of working. For instance, in 2021, Hensher et al. (2021) found that many employees and organizations are likely to choose to work from home even after the pandemic. In addition, in the "Future trends in remote work worldwide from 2020 to 2022" global survey

data released by Statista, telework is still one of the work arrangements in place for almost half of 1200 participants in 2022 (45%) and 29% of the participants stated that they are currently working in a hybrid model. More importantly, 36% of the respondents considered that they will be working in a hybrid model permanently.

Previous research on the impact of teleworking has given conflicting results. On the one hand, meta-analyses revealed that teleworking, especially before the onset of the COVID-19 pandemic, had positive individual- and organizational-level relevant outcomes such as perceived autonomy, (lower) work–family conflict and turnover intentions, job satisfaction, job performance, low role stress (Gajendran and Harrison 2007), productivity, organisational commitment, and retention (Harker Martin and MacDonnell 2012). Gajandran and Harrision's meta-analysis (2007) found that these beneficial consequences of the telework appeared to be at least partially mediated by perceived autonomy. On the other hand, telework has been linked to some negative outcomes, particularly in the case of employees teleworking the majority of their time. Also, high-intensity teleworking (more than 2.5 days a week) accentuated teleworker's beneficial effects on work–family conflict, but harmed relationships with coworkers.

Before the COVID-19 pandemic, teleworkers' health, including burnout, was not the primary focus of the empirical research; nowadays, it is a priority. Previous studies, many of them with cross-sectional designs, provide mixed results on the relationship between telework and burnout (Lunde et al. 2022). In addition, recent empirical research tends to provide mixed support for the relationship between telework and burnout or its dimensions. For instance, Lippens et al. (2022) found that notwithstanding the exceptional time of sudden, obligatory, and high-intensity telework imposed by COVID-19 measures, the respondents mainly attributed positive characteristics to telework, such as increased efficiency and a lower risk of burnout. Stempel and Siestrup (2022) found in a sample of 599 teleworkers that a higher level of age, autonomy, adequate work environment, and a low level of overtime and information deficit are related to low emotional exhaustion.

Hoffmann et al. (2020), using a sample of 573 radiation oncology, radiation physics, and experimental radiation oncology professionals, found that the rate of burnout across the cohort was 32%, that the majority of employees working from home at least part of the time reported the experience was positive (74%), and that feeling positive about working from home was associated with reduced burnout. However, qualitative data review suggested the main drivers of unfavorable work-from-home responses were child/family care issues and information technology issues. Thus, having negative experiences with telework from home was associated with burnout. Similar results were found by Brault et al. (2022) in a sample of 220 female healthcare workers. Overall, reported burnout was low, with only 32.7% of respondents scoring in the moderate-burnout category and no respondents scoring in the high-burnout category. In particular, this sample included younger women. In the same line, in a study conducted during COVID-19 pandemic, Arenas et al. (2022) revealed no difference between Brazilian workers working from home/telework and those working face-to-face in terms of burnout symptoms. Clinically significant levels of burnout were associated with being female, increased childcare load, and living with children under 12 years old. Employees who felt the pressure to overwork were more likely to have a more permeable family boundary when working from home, and appeared to experience a much higher psychological cost in terms of emotional exhaustion. Gender differences in mental health are often identified, with women more often showing symptoms of anxiety, lower psychological well-being, and a lower quality of life (Gaspar et al. 2021; Gurvich et al. 2020; Hou et al. 2020; Eurofound 2021). With regard to burnout, the gender differences are not so clear and linear. In some studies, there are no gender differences and in others the factors that explain gender differences differ depending on whether you are a man or a woman (Gaspar et al. 2023a; Zhang et al. 2022).

There are different forms of teleworking. For example, teleworking can be fixed hours and highly regulated by leadership, or it can be based on trust, with set tasks and time and task management carried out by the worker themselves. Teleworking can be carried out in a hybrid way; some days the worker is teleworking and on others they are in person at the company, or they can be entirely teleworking. Some studies revealed that the type of program used during telework is a moderator of the relationship between telework and burnout. For instance, Trogolo et al. (2022) found in a sample of 1049 Argentinian workers that home-based telework under fixed schedules, but not that under flexible schedules, impacts negatively on mental health considered in terms of burnout, life satisfaction, anxiety, and depressive symptoms. In addition, a low level of the ability to freely determine the work schedule and location and the involuntariness in telework was found to increase emotional exhaustion (Giauque et al. 2022; Lopes et al. 2022). Furthermore, it seems that the motives for telecommuting present different relationships with exhaustion. In this sense, Vanderstukken et al. (2021) found that telecommuting because one has to (the job requirement class) was not related to exhaustion measured 6 months later, while telecommuting to cope with deadlines and pressure (the efficiency class) and telecommuting to have a healthy balance between work and family/leisure (the work–life balance class) were related to less emotional exhaustion.

Screen time at work

To date, no studies have explicitly linked workplace screen time to occupational burnout or its dimensions. However, this relationship can be informed by the previous research on the use of information and communication technology and occupational burnout and other health outcomes such as virtual meetings fatigue (Gallo 2020), screen time use, and digital burnout. In this sense, previous research reveals that the use of information communication technology (i.e., technostress) increases burnout in older, middle-aged, and younger workers (Berg-Beckhoff et al. 2017). Recent studies reveal that it is not the use of ICT per se which negatively impacts mental health and burnout, but digital work intensification (i.e., working at very high speed or to tight deadlines; Leitner & Stöllinger 2022). Using a within-person experience sampling study in which the use of the camera was manipulated, Shockley et al. (2021) found that using the camera is fatiguing and this effect not attributable to time spent in or number of virtual meetings. Moreover, this effect is higher in the case of employee voice and engagement in meetings, women, and newer employees. Furthermore, prolonged screen time can cause digital burnout. For instance, Durmuş et al. (2022) found that nursing students who spent more than 5 hours a day online had higher digital burnout than those who spent less than 5 hours a day online.

Perceived pay fairness

Perceived pay fairness refers to the perceptions of internal and external pay fairness or reactions to pay relative to referents inside and outside the organization. Shaw and Gupta (2001) found that unfair pay results in greater psychological and physical problems when employees report a high need for money.

Demerouti et al. (2014) established a relationship between remuneration and the prevention of burnout and other work psychosocial risks. The authors found that salary is the most successful strategy in buffering the negative associations of disengagement with supervisor-rated task performance and both disengagement and exhaustion with supervisor-rated adaptivity to change.

In contrast, other studies highlight that satisfaction with salary did not have a significant effect on burnout. For instance, Kader et al. (2021) found that psychiatrists' high levels of satisfaction with co-workers, work, supervision, opportunities for promotion, and the job in general reduce emotional exhaustion and depersonalization. Satisfaction with salary was not related to burnout. In the same direction, Pikó and Mihálka (2017) found that satisfaction with salary was not related to Hungarian teachers' burnout.

Sickness presenteeism

According to the WHO (Burton 2010), presenteeism is defined as the reduced productivity of someone who is present at work, but either physically or mentally unwell, and therefore not as effective, efficient, or productive as they would normally be. In a comprehensive analysis of the literature, Ruhle et al. (2019) identified three main lines of understanding the concept of presenteeism: (a) the act of attending work while ill, as the outcome of a complex decision-making process by the ill person to either attend work or stay at home, (b) the measurable loss of productivity due to attending work with health problems, and (c) the act of not fully engaging in work due to illness as well as non-illness-related reasons. In our study, we adopt the second perspective on presenteeism.

Previous research showed a positive relationship between burnout or its dimensions and perceived productivity loss due to presenteeism (Ferreira and Martinez 2012). While some studies examined presenteeism as a consequence of the burnout (Demerouti et al. 2009; Ferreira et al. 2019), others investigated the predictive role of presenteeism. These studies reveal that emotional exhaustion seems to be more strongly related to presenteeism compared to other dimensions of burnout, such as professional efficacy and cynicism. In a systematic review on the antecedents and associations of sickness presenteeism and sickness absenteeism in nurses, Brborović et al. (2017) found that burnout is an antecedent of sickness presenteeism. One of the negative outcomes of employee presenteeism is sickness absenteeism (Dietz et al. 2020; Nielsen and Daniels 2016).

Sickness absenteeism

Sickness absenteeism refers to health-related absence from work (Halbesleben et al. 2014). Research evidence shows that burnout has a positive impact on the individual- and team-level sickness absenteeism. For instance, Schaufeli et al. (2009) found that burnout positively predicted registered sickness duration. Other studies reveal that global burnout and emotional exhaustion were significant predictors of short-term (but not long-term) (Anagnostopoulos & Niakas 2010) and mental but not musculoskeletal or other somatic long-term sickness absenteeism (Roelen et al. 2015). Similarly, Peterson et al. (2008) found that four burnout categories (non-burnout, disengaged, exhausted, and burnout) related in different ways to sickness-related outcomes. The proportions of respondents with overtime, sickness absence, and sickness presence were higher in the burnout and the exhausted groups compared with the disengagement and non-burnout groups. In contrast, Salvagioni et al. (2022) found that depersonalization and not emotional exhaustion or low professional efficacy positively predicted long-term

sickness absence (≥ 30 consecutive days). In addition, Consiglio et al. (2013) found that in teams with high levels of burnout the level of sickness absenteeism is also high.

Burnout is one of the biggest problems in terms of health and safety at work. The lack of appreciation of psychosocial risks at work, particularly burnout, will have an impact on the physical, mental, and social health of professionals and on the organisation's health indices related to absenteeism, productivity, job satisfaction, and turnover. This has an impact on society and the global economy.

This study is innovative in that it allows the WHO healthy workplaces model to be operationalised with a special focus on burnout (Burton 2010). It uniquely allows burnout to be studied from a systemic and ecological perspective. Other studies have delved into burnout in a segmented way. This study looks at burnout in relation to the culture and ethics of the organisation, in relation to leadership, professional involvement, the psychosocial work environment, the physical environment, external relations, and social responsibility, as well as professional health resources. It also allows us to understand burnout taking into account the sociodemographic and health characteristics of the professional. This integrated view is not found in other studies, at least to our knowledge. The present study was designed In line with these situations, aiming at investigating how different healthy workplace dimensions and other individual-level health variables are related to burnout, and secondly examining differences in terms of presenteeism, absenteeism, and quality of life between employees who report burnout symptoms and those who do not.

Method

Study design and participants

This study employed a cross-sectional research design and used a national convenience sample comprising 1702 employees. Most of the participants were female (1186: 69.68%). The participants' age ranged from 18 to 72 years (mean = 43.25 years, SD = 10.40).

More than half of the participants (61.4%) reported being married or living with a partner, while 27.1% were single, 10.6% divorced or separated, and 0.9% widowed. Almost 66% reported that they have children. In terms of education, 38.9% have completed secondary education (mandatory schooling, 12 years), 38.8% have a bachelor degree, and 22.3% have a Master or PhD degree.

Regarding their health condition, 1206 participants (70.9%) reported not having chronic diseases while 494 (29.1%) reported having a chronic disease.

Instruments

The instrument used comprises sociodemographic questions and items from the Management and Quality of Health Organizations instrument (Gaspar 2020a, b; Gaspar et al. submitted) and the Healthy Workplace Ecosystems instrument (EATS) developed based on the healthy workplaces model proposed by the World Health Organization (Burton 2010).

In this study, only eight scales from the EATS were used: (1) the ethics and values (eight items, α = 0.91), 2) the leadership engagement (six items, α = 0.95), (3) the workers' involvement (seven items, α = 0.89), (4) the psychosocial risks at work related to work content and relationships with leadership (12 items, α = 0.91), (5) the physical environment (five items, α = 0.92), (6) teleworking (three items, α = 0.82), (7) community involvement (12 items, α = 0.90), and (8) resources for personal health (four items, α = 0.83). All questions have a 5-point Likert-type scale.

The global healthy workplace was measured with one item: “How would you rate the work environment of your organisation—on a scale of 0 to 10”. Participants indicated their extent of satisfaction using a Likert scale from 0 (total dissatisfaction) to 10 (total satisfaction).

Burnout symptoms were assessed with three items from Gaspar et al. (2022). These items were: "I felt exhausted", "I felt irritated" and "I felt sad". Participants rated how they felt in the last 4 weeks on a 5-point Likert-type scale (from 1 = to 5 =, α = 0.89). From this, two groups were created: one consisting of workers who have at least one of the symptoms of burnout (exhaustion, sadness, and irritation) and another group without any symptoms of burnout.

Health behaviours were measured with four items (Gaspar et al. 2022). Items regarded eating behaviours, stress levels, sleep habits, and physical activity (α = 0.70). We considered both the individual score on each item and the global score on the scale.

The four-item version of the Perceived Stress Scale (PSS; Cohen et al. 1983; Pais-Ribeiro and Marques 2009) was used to assess the degree to which an individual evaluates their life situations as stressful ($\alpha = 0.77$).

Screen time at work was measured through the following question: “How many hours a day, on average, do you usually use electronic devices with a screen at work?”. Participants had to choose only one from five possible answers: never, up to 2 h, 3 to 7 h, 8 to 11 h and 12 h or more. The time was considered excessive for the professionals who answered 8 or more hours.

Perceived pay salary was measured with the following question: "Do I consider my remuneration to be fair in relation to my responsibilities, my function, and in comparison, to the amounts paid in the sector where I work?".

Participants provided their answer on a five-point Likert-type scale (from 1 = totally disagree to 5 = totally agree).

Health and quality of life variable was assessed with two items from WHOQOL-Bref (WHOQOL-1998): "To what extent are you satisfied with your quality of life" and "To what extent are you satisfied with your health".These two items were on a five-point Likert-type scale (1 = ; 5 =). The minimum possible score was 2 and the maximum score 10 ($\alpha = 0.84$).

Sickness presenteeism was measured with one question: "How often do health problems hinder the performance of your work?". *Sickness absenteeism* was measured with the following question "How often do you miss a full day, or part of a day, of work due to physical or mental health problems?". Both questions use a five-point Likert scale ranging from 1 = never/almost never to 5 = always/almost always.

Procedure

The permission to conduct this study was requested from and approved by the Ethics Committee of Hospital Professor Doutor Fernando Fonseca (18.03.2021./No 031/2021.).

Several organisations from different activity sectors, spread throughout the country, were invited to participate in this study. A meeting was held with the companies/organisations to explain the study and clarify issues. Those that agreed to participate received an online version of the instrument. A contact person from the organization spread the link internally among their workers. The sample was by convenience. We included large- and medium-sized organizations from various sectors of activity. Public, private, and social organizations were invited to participate.

The first page of the online version of the instrument included an explanation of the study, the contact details of the researchers for further queries and details on the project, as well as information on confidentiality and anonymity. The participant only had access to the instrument items only after they voluntarily signed the informed consent. At the end of the data collection, each organisation involved received an individual report with the organisation's aggregate results, risk index in the different dimensions, and recommendations for promoting a healthier working environment.

Results

Descriptive statistics for the variables included in this study are presented in Table 1.

Results of the multiple linear regression revealed that the model comprising socio-demographic characteristics (i.e., age and gender), healthy workplace dimensions, perceived stress, health behaviours, screen time at work, and satisfaction with salary is significant [$F(14, 867) = 40.54$, $p < 0.001$; Table 2]. This model explains 39% of the burnout symptoms variance.

There are significant differences in burnout symptoms in terms of gender. Females tend to report a higher level of burnout symptoms compared to males ($\beta = 0.06$, $p < 0.05$). A high level of global burnout is related to a low perception of leadership engagement ($\beta = -.18$, $p < 0.01$), psychosocial work environment ($\beta = -.24$, $p < 0.001$), personal health resources ($\beta = -.06$, $p < 0.05$), health behaviours ($\beta = -.13$, $p < 0.001$), and satisfaction with salary ($\beta = -.14$, $p < 0.001$). In addition, the global score on burnout symptoms is positively related to worker involvement ($\beta = 0.15$, $p < 0.001$), enterprise community involvement ($\beta = 0.12$, $p < 0.01$), stress ($\beta = 0.38$, $p < 0.001$), screen time at work ($\beta = 0.09$, $p < 0.01$). The global score on burnout symptoms was not significantly related to age ($\beta = 0.01$, $p > 0.05$), ethics and values ($\beta = 0.06$, $p > 0.05$), physical work environment ($\beta = 0.02$, $p > 0.05$), and telework ($\beta = 0.02$, $p > 0.05$).

Table 1 Descriptive statistics of healthy workplaces dimensions and comparison analysis according to burnout symptoms

	Descriptive statistics				*t*-test & significance
	Mean	SD	Mean	SD	
	Without burnout symptoms		With burnout symptoms		
1. Ethics and values	3.64	0.81	3.15	0.86	$t = 12.25$, $p < .001$
2. Commitment of leadership	3.51	0.91	2.88	1.04	$t = 13.24$, $p < .001$
3. Employee involvement	3.84	0.79	3.53	0.81	$t = 7.96$, $p < .001$
4. Psychosocial risk factors at work—leadership and work content	3.99	0.69	3.52	0.69	$t = 13.96$, $p < .001$
6. Physical environment	3.71	0.88	3.15	0.97	$t = 12.50$, $p < .001$
7. Telework	3.45	1.10	3.35	1.05	$t = 1.42$, $p >$ n.s.
8. Community engagement	3.79	0.64	3.47	0.66	$t = 10.24$, $p < .001$
9. Personal health resources	3.07	0.90	2.61	0.90	$t = 10.53$, $p < .001$

n.s. = not significant

In order to perform the comparison between employees who report burnout symptoms and those who not.

We found that almost half of the participants (49.9%) reported having always or often at least one of the burnout symptoms (Table 3). The symptom with the most intensity was exhaustion (mean = 3.24, SD = 1.24), followed by irritability (mean = 2.99, SD = 1.20) and sadness (mean = 2.82, SD = 1.24). Data revealed that 43.7% of the participants reported feeling exhausted always or often, while 34.5% reported feelings of irritation and 30% sadness.

Burnout symptoms are associated with high presenteeism and more often associated with higher absenteeism. More than 60% of the participants with global burnout reported high presenteeism (62.5%). In addition, a similar percentage of the participants who reported global burnout also reported high levels of absenteeism (62.3%).

Table 4 shows a comparison of quality of life between professionals with and without burnout symptoms. Professionals with burnout symptoms present higher risk

Table 2 Linear regression for explaining the global burnout by the sociodemographic characteristics, dimensions of healthy work environments, perceived stress, health behaviours and satisfaction with salary

Variables	B	Standard error	β	*t* test
(Constant)	8.20	1.08		7.62***
1. Age	0.00	0.01	0.01	0.38
2. Gender (1 – female)	0.41	0.20	0.06	2.09*
3. Ethics and values	0.24	0.23	0.06	1.04
4. Leadership engagement	-0.59	0.19	−0.18	-3.11**
5. Worker involvement	0.59	0.16	0.15	3.60***
6. Psychosocial risk factors at work—leadership and work content	−1.11	0.21	-0.24	-5.18***
7. Physical work environment	−0.13	0.12	−0.04	-1.09
8. Telework	0.06	0.09	0.02	0.70
9. Enterprise community involvement	0.61	0.20	0.12	3.06**
10. Organizational resources for personal health	−0.22	0.12	−0.06	-2.00*
11. Perceived stress	1.73	0.14	0.38	12.49***
12. Health behaviours	−0.15	0.03	−0.13	-4.26***
13. Screen time at work	0.617	0.194	0.09	3.18**
14. Perceived salary fairness	−0.379	0.082	−0.14	-4.63***

Table 3 Descriptive data for burnout symptoms and global burnout ($n = 1702$)

Variables	Min	Max	Mean	SD	% yes—always or often	High presenteeism %(X^2)	High absenteeism %(X^2)
1. Exhaustion	1	5	3.24	1.24	43.7	58.9 (35.43)***	59.2 (13.79)***
2. Irritability	1	5	2.99	1.20	34.5	46.9 (25.94)***	48.5 (12.20)***
3. Sadness	1	5	2.82	1.24	30.0	40.8 (20.89)***	40.0 (6.70)**
4. Global burnout	3	15	9.05	3.32	49.9	62.5 (23.44)***	62.3 (8.57)**

Table 4 Participants' characteristics and health indicators by burnout symptoms

Variables (scale of measurement)	Without burnout symptoms Mean (SD)	With burnout symptoms Mean (SD)	*t* and *p*
Health behaviours	12.99(2.77)	11.16(2.76)	$t = 13.61; p < .001$
Stress management	2.21(0.68)	2.74(0.69)	$t = -16.16; p < .001$
Health & quality of life	7.77(1.48)	6.53(1.87)	$t = 15.20; p < .001$
Dissatisfaction with salary	2.64(1.20)	2.00(1.109	$t = 11.47; p < .001$
Global healthy workplace measure (0–10)	7.23(1.94)	5.71(2.38)	$t = 14.45; p < .001$
	%	%	X^2/p
Excessive screen time at work	44.6	55.4	$X^2 = 9.41;\ p < .01$

behaviours and excessive screen time at work when compared to professionals without burnout symptoms.

Workers with burnout are the ones who show higher dissatisfaction with salary and the ones who make a more negative overall assessment of the organisation with Healthy Workplace when compared to workers not reporting burnout symptoms.

Discussion

The objective was to examine the relationship between the different dimensions of the healthy work environment ecosystem and burnout, and to compare professionals with and without burnout in terms of absenteeism and presenteeism, health behaviours, and stress management strategies.

Our findings reinforce the need to understand the burnout phenomenon in a multidimensional and systemic way. Although it is considered an occupational phenomenon (World Health Organization 2019), burnout is influenced by and influences different components and contexts of the worker's life.

We found that what best explains the burnout symptoms is workers' perceived stress, followed by psychosocial risk factors at work related to leadership and work content, satisfaction with salary, and health behaviours. We have found that the healthy workplaces dimensions that are strongly related and better explain burnout symptoms, are psychosocial risk factors at work related to leadership and work content, and employee Involvement followed by commitment of ceadership.

We identified a positive relationship between perceived stress and burnout. This is in line with previous research that showed that burnout has a relationship with health from a biopsychosocial perspective, given that a healthier lifestyle is associated with fewer burnout symptoms Gabriel and Aguinis 2022; Goh et al. 2019; Renfrow 2020). Effective work stress management is one of the protective factors, and promotes burnout prevention. Mental health promotion and burnout prevention programs should include the promotion of socio-emotional skills that allow for a better management of work stress (Pijpker et al. 2020; Wu et al. 2021).

Consistently with previous research, we found that satisfaction with salary was negatively related to burnout. Demerouti et al. (2014) identified a relationship between remuneration and the prevention of burnout and other work psychosocial risks.

In our sample, almost half of the workers reported at least one of the symptoms of burnout. The symptom with greatest ntensity was exhaustion, followed by irritability and sadness. This finding is consistent with those of the previous studies. Although burnout can manifest itself in different ways — through exhaustion, sadness, cynicism, irritability, and affective withdrawal, among others — exhaustion is the most frequent characteristic (Bakker and Costa 2014; Goh et al. 2019; Mäkikangas et al. 2017; Renfrow 2020; Suner-Soler et al. 2014).

Burnout is a serious, physically-, psychologically-, socially-, and occupationally-incapacitating phenomenon. Although affecting professionals even before the pandemic, it becomes more prevalent in face of the changes, challenges, and stress associated with the COVID-19 pandemic (Gabriel and Aguinis 2022; Gaspar et al. 2021).

We found that more than half of the employees with high levels of presenteeism and absenteeism reported a high level of global burnout. Our findings consist with previous research that underlines the deleterious effect of burnout or its components in terms of productivity loss due to presenteeism (Ferreira et al. 2019). Thus, in addition to the consequences on physical and psychological health, burnout is also reflected in the performance and quality of work associated with presenteeism, as well as it may contribute to sick leave by increasing absenteeism (Bakker and Costa 2014; Gabriel and Aguinis 2022; Suner-Soler et al. 2014).

Limitations and strengths

Our study has several limitations. The data was collected through a cross-sectional design, which prevents us from concluding about cause–effect relationships. Future studies could adopt research designs that could provide information about causal relationships, such as longitudinal designs.

The data collection took place after a more acute moment of the pandemic, so it would be interesting to include the professionals' perception of the comparison before and after the pandemic. The study will be replicated every year, which will make it possible to monitor the variables, particularly burnout, over the years.

The generalization of our findings is reduced as, although very large, the sample was not representative for the Portuguese employee population. Future studies should consider representative samples and other cultures too. Furthermore, most of our participants were females (69.68%). Furthermore, we did not control for the sector of activity, profession, or hierarchical status of the participants. While burnout can happen in any profession, some of the professions, such as healthcare workers or psychotherapists, are more vulnerable to burnout or have a lower mental well-being (Rus et al. 2022; Yang and Hayes 2020) or are prone to presenteeism (Ferreira et al. 2019). In addition, previous studies support the necessity for targeted interventions for different groups within organizational hierarchies, such as leaders, health professionals, and customer service professionals, among others who show a higher risk of chronic work stress and burnout, in order to reduce psychological distress and burnout (Wallis et al. 2021), but also presenteeism (Eurofound

2017), or to ensure that attending work is the most appropriate course of action considering both the health condition and the nature of the work (Whysall et al. 2018).

Our variables were measured with self-reports that may be subject to biases (e.g., social desirability) and to common method variance (Podsakoff et al. 2003). Future studies may use objective data, for instance, to measure absenteeism.

Implications and future developments

Nowadays, workers are the most important asset of any organisation. Thus, policies and practices promoting the employees' well-being should be a priority (Gaspar 2020a, b, 2021; Otto et al. 2020; Wu et al. 2021). Given the impact and costs that burnout has on a large array of individual- and organizational-level outcomes, it is important to have policies and practices in place to promote interventions to prevent burnout occurrence, to reduce its incidence, and to mitigate its impact on these outcomes. Our findings reveal that avenues of influence for a healthy workplace are the psychosocial work environment implied by leadership and work content, and the personal health resources in the workplace. As the relationship with leadership, associated with communication, autonomy, and appreciation, is one of the most important factors for the employees' well-being, and the prevention and rehabilitation of workers with burnout (Adlakha 2019; Harvey et al. 2014; Suner-soler et al. 2014), interventions in these avenues should adopt a multi-component approach, as previous research showed that when combined in a comprehensive programme, the practice of promoting healthy work environment leads to favourable health-related outcomes and well-being of workers and organisational health (Wu et al. 2021).

To prevent and reduce burnout, action only of one type (individual or organisational) may not be enough. In a recent study, Vleugels et al. (2022) found that there are two independent pathways associated with employee health and well-being, one under the direct control of the organization (occupational stressors) and one under the direct control of the person (healthy lifestyle behaviors). The authors emphasised that both pathways need to be separately attended to in order to attain the best outcomes in terms of reducing stress complaints. As our study found that perceived stress had the strongest association with burnout symptoms, individual-focused relaxation and cognitive interventions could be used effectively to reduce perceived stress (Estevez Cores et al. 2021).

Our present study focused only on individual-level outcomes. We need to fully understand also the factors that influence outcomes of burnout at other levels such as teams and organizations.

Our findings highlight the need for clear recommendations and guidelines both for employees with regard to self-care, and for organizations and policy makers pointing out directions for practices and public policies to be "worker friendly".

Furthermore, it is necessary not onl;ly to apply systematic and continued interventions to prevent and reduce burnout, but also to promote health in the workplace (Suner-Soler et al., 2014). These interventions may be integrated in the culture of the organization with the support of occupational health professionals and psychologists as literature suggests that they have a key role to play in effective workplace wellness promotion and illness prevention programmes (Pijpker et al. 2020).

Acknowledgements This study was integrated in grant UIDB/05380/2020 funded by the Foundation for Science and Technology – FCT (Portuguese Ministry of Science, Technology and Higher Education).

To Laboratório Português dos Ambientes de Trabalho Saudáveis (LABPATS)

(Portuguese Healthy Workplaces Laboratory) team and partners

Author contributions All authors contributed to the study conception and design. Material preparation, data collection, and analysis were performed by Tania Gaspar, Fábio Botelho-Guedes, and Ana Cerqueira. The first draft of the manuscript was written by Tania Gaspar and Margarida Gaspar-Matos; Claudia Rus and Adriana Baban reinforced the discussion and carried out a global revision. All authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

Funding Open access funding provided by FCT|FCCN (b-on). The authors declare that no funds, grants, or other support were received during the preparation of this manuscript.

Declarations

Ethics approval This study was performed in line with the principles of the Declaration of Helsinki. Approval was granted by the Ethics Committee of Hospital Professor Doutor Fernando Fonseca (18.03.2021./ No 031/2021.)." The study was approved by several ethics committees, academic and hospital ethics committees. Statement regarding the welfare of animals — not applicable.

Consent to participate Informed consent was obtained from all individual participants included in the study. Informed consent was obtained for all participants before completing the instrument. Consent includes information about the study, voluntary, the anonymous and confidential nature of the study, and data.

Consent to publish Not applicable.

Competing interests The authors have no relevant financial or non-financial interests to disclose.

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Key messages

1. What best explains the burnout symptoms is workers' perceived stress, followed by psychosocial risk factors at work related to leadership and work content, satisfaction with salary and health behaviours.
2. There is a positive relationship between perceived stress and burnout: effective work stress management is one of the protective factors that prevents burnout and promotes mental health.
3. Satisfaction with salary was negatively related to burnout.

4. The symptom with greatest intensity was exhaustion, followed by irritability and sadness, and became an even more serious public health concern after the pandemics.
5. In addition to physical and psychological health problems, burnout is also reflected in the (lack of) quality of work associated with presenteeism, and it may contribute to sick leave, increasing absenteeism.
6. Our findings reinforce the need to understand the burnout phenomenon in a multidimensional and systemic way, as it is influenced by and influences different components and contexts of the worker's life.