Human resource management, quality of patient care and burnout during the pandemic: A job demands-resources approach

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Purpose: Based on the job-demands resources model, this study examines the potential of human resource management practices to simultaneously improve physicians' burnout and quality of patient care during the COVID-19 pandemic.

Design/Methodology/Approach: Drawing on a sample of 499 physicians working in specialised medical units, structural equation models through PLS-SEM was used to check the proposed hypotheses.

Findings: The results show that human resource management can reduce physicians' burnout and increase quality of patient care by considering job demands and job resources as mediators. In addition, this study suggests that burnout and quality of patient care can be improved simultaneously.

Research limitations/implications: This research is focused on healthcare, which opens important opportunities to extend the proposed model in other public and private industries.

Practical implications: Managers need to understand that fostering well-being among employees is crucial for human resource management and impacts positively on employee performance.

Originality/value: This study offers a double mediation process whereby job demands and job resources are key underlying mechanisms through which human resource management practices reduce burnout and improve performance in a compatible way.

Keywords: Human resource management practices; Job demands; Job resources; Burnout; Performance

1. Introduction

Burnout still remains as a worldwide health problem, particularly among health care workers (Rathert et al., 2022). As a result of prolonged exposure to high job demands, such as workload, role ambiguity, stress, work pressure and role conflict, physicians develop chronic exhaustion and distance themselves from their work. Research has shown that burnout is normally a consequence of high job demands (Demerouti et al., 2001), and the pandemic was a perfect scenario for burnout levels to skyrocket (Sun and Hennekam, 2021). At the same time, there is an intense debate concerning the effect of HR practices on employee well-being and health (Wang et al., 2022), and human resource management (HRM) scholars have become more aware that promoting employee well-being is beneficial for both employees and organisations (Ho et al., 2020). However, the emerging question of whether individual perceptions of HR practices can improve both well-being and performance has still not been resolved (Batat, 2022; Elorza, 2022), and there is significant lack of evidence in health care and disruptive environments. Recent reviews show that HRM has a deep impact on employees' well-being, although the pathways are sill to a great extent unknown. The present research aims to fill this void and extend the job demands-resources model by exploring the indirect effect of HR practices on physicians' burnout and quality of patient care through job demands and job resources.

Scholars have recently underlined the need to develop theories and empirical evidence about the role of HR practices in helping employees maintain their well-being and performance during disruptive experiences, such as the COVID-19 pandemic (Guest, 2022; Kim et al., 2022). However, research has revealed puzzling findings in the relationship between HR practices, quality of working life and performance (Loon et al., 2019), and to complete the picture, major life events can disrupt and erode the effective use of job resources (Bakker et al., 2019), thus affecting performance and well-being.

Kloutsiniotis et al. (2022) underscored the key role engagement plays in improving both employees' health and performance, and we follow this important research line by examining the effect of a set of HR practices, based on Shantz's et al. (2016) and tailored to health care settings, on physicians' burnout and performance. We ground our model on self-determination theory (SDT) (Deci and Ryan, 2000), on the basis of the principles of quality of working life, Warr (1987) assumptions, and the concept of work engagement.

SDT states that employees will internalize their tasks and experience higher levels of energy, concentration, and persistence if they fulfill the three innate psychological needs for autonomy, competence, and relatedness. HR practices that are focused on enhancing opportunities for development, participative decision-making and communication, might fulfill SDT basic psychological needs. The proposed set of HR practices are not just focused on developing a competent workforce, but a healthy workplace where the person can feel a positive climate of social interactions, personal growth and voice (Guest, 2017).

In turn, this set of HR practices are aimed at reducing work workload and emotional demands, and fostering job resources. Conservation of resources theory (COR) (Hobfoll, 1989) allows us to relate HR practices with lower burnout and improved performance through reduced job demands and increased job resources. According to COR theory, employees aim to take action to build, protect, and retain the personal circumstances from their loss to deal with job demands (Hobfoll, 1989). HRM can be integrated as a job resource (Meijerink et al., 2020), given that HR practices that stimulate growth and positive attitudes provide energy and lead to motivation, thus helping individuals to achieve their goals (Gordon et al., 2018). In this vein, the proposed set of HR practices might act as a job resource leading to new job resources, such as resilience,

and lower job demands because it could develop "the ability to adapt to adversity and endure job demands" (Kossek and Perrigino, 2016), namely resilience.

In addition, resilience can improve well-being and performance, because it represents a job resource that plays both an intrinsic and extrinsic motivational role (Gordon et al., 2018). When job resources are lacking, work begins to lose its meaning and hinders employee well-being. Job resources should have a negative effect on burnout, though there is a less clear link to burnout than to job demands (Demerouti et al., 2001). Greater job demands can result in exhaustion, burnout and poorer performance (Bakker et al., 2019), but HR practices, as job resources, could reduce job demands, thus improving both performance and burnout levels.

We performed a cross-sectional research using a sample of 499 medical specialists who attended COVID-19 patients at times of hospital saturation. Cross-sectional designs provide special value to study underlying processes that have already happened, and when the study object is the final result of a model whereby individuals who show high levels of a particular variable tend to be high on particular outcomes. Longitudinal studies might present advantages, but their fundamental limitation lies on the required time lapse between the independent and dependent variables, which differ depending on the context, characteristics of the organization and topic addressed (Spector, 2019). In healthcare organizations there are strong limitations to the feasibility of longitudinal research unless an experimental study is carried out.

We contribute by offering a response to a number of issues that require clarification. First, this study suggests that HR practices defined from opportunities for development, communication and participative decision making could create a positive employment relationship based on mutuality in the context of the pandemic. This disruptive context is an area which is still at an emerging stage in the HRM field (Kim et

al., 2022). Second, we extend the job demands-resources model by exploring the expectation that HR practices simultaneously reduce medical specialists' burnout and improves their performance from a micro-level perspective, which is a claim that has recently been made (Edgar et al., 2019). To this aim, we investigate whether HR practices influence the situational experience of healthcare professionals through the JD-R framework, by focusing on job burnout and performance levels as an outcome. Third and finally, we integrate the JD-R model with SDT theory to show how HR practices translate into lower burnout and higher performance in disruptive contexts.

2. Literature review and development of hypotheses

HRM and mutual gains in healthcare

The coronavirus disease has placed critical pressure on employees, and its individual impact led to increased anxiety and stress (Collings et al., 2021). Research has proved that daily exposure to long working hours, human suffering such as pain and death, together with the responsibility to perform faultlessly, result in damage to health, including burnout, stress, and sleep difficulties (Fendel et al., 2020). Job burnout is a syndrome induced by lack of resources and incentives (Demerouti, 2015), and presents manifold consequences, including reduced job satisfaction and work efficiency, and higher staff turnover rates (Alrawashdeh et al., 2021; Dai et al., 2020; Chami-Maleb, 2021).

According to Guest (2017), appropriate combinations of HR practices can not only improve work-related well-being, but also performance. Research on the impact of HR practices on employee-well-being and performance has still ground to be covered. HRM research is imprecise, because practices such as opportunities for participation, has been largely underused (Wood, 2020). According to Wood (2020), role involvement and voice

have been largely neglected, and therefore it is crucial to include these factors in HRM research. Discussions on this matter emerged as a response to the aforementioned inconsistencies, and interest in sustainable human resource management has come in the form of HR practices that ultimately do not harm or improve employee physical or psychological health (Wang et al., 2022; Hauff et al., 2022). Further, Xiao et al. (2022) called for advancing research by examining which HR practices might improve healthcare professionals' well-being, and claimed the need to identity theories that explain how HR practices improve employees' well-being. In this line, we ride the tide to investigate if a particular set of HR practices simultaneously reduce burnout and improve performance of medical specialists.

This study adopts a set of HR practices based on the key principles of a positive employment relationship, understood as the mutual gain of employers and employees. In particular, we suggest a combination of HR practices that might provide high engagement levels, and derived from involving opportunities for development, participative decision-making and communication. The relationship of these practices and engagement was examined by Shantz et al. (2016), who found that they were related to work engagement. We also grounded these practices in quality of working life (QWL) (Walton, 1974) theory, also supported by SDT theory, as they might fulfil the basic needs for competence, autonomy, and relatedness. In addition, the proposed set of HR practices follow the three dimensions of mutuality suggested by Boxall (2013), namely, the capability match, the commitment match, and the contribution match, which are expected to improve employees' well-being and performance. According to Khoreva and Wechtler (2018), the empirical evidence related to the HRM-employee well-being-performance connection shows that HRM positively affects performance but in some cases HRM might result in higher levels of stress, burnout and other negative effects on employee well-being. These

authors signal the possibility of more complexity in the relationship between HRM, well-being, and performance, and stress that several questions steel remain unanswered (Boxall et al., 2016). Likewise, Guest (2017) suggested that HRM has traditionally been oriented towards increased performance thus overlooking employees health and well-being. He provides an alternative route to sustainable performance based on employees' well-being. Recent research calls to advance in HRM that create a "win-win" situation were both performance (understood as quality of patient care) and well-being are achieved, thus indicating a future research way for HRM framed in healthcare (Xiao et al., 2022).

Opportunities for development cover the capability match because they encourage employees to foster their ability to integrate and exchange knowledge. It is closely connected with the need for competence and improves job resources because opportunities for development expand employees' capacity to deal with highly demanding contexts and, in turn, improve their well-being and foster their performance. Medical specialists are knowledge-intensive employees who undergo continuous learning to ensure they are up to date. HR practices can help employees expand their knowledge base beyond their current knowledge domain (Chen et al., 2022), which is critical in uncertain and crisis contexts. Opportunities for the development of HR practices help organisations to guide employees on how to perform their work effectively, which should improve their health conditions and their performance at the same time. Development opportunities for physicians open up their career prospects and reduce frustration and alienation (Lang, 1985). This could encourage physicians to increase their engagement and work more effectively. In challenging circumstances such as a pandemic, physicians need to do their best so they can work with utmost precision. Under the COVID-19, physicians required a rapid and effective exchange of existing knowledge to ensure a

rapid patient attention with the best resources available (Lingum et al., 2021). And this development has communicating vessels with employee communication and perceptions of participation, as interaction with colleagues ease knowledge exchange (Chung and Jackson, 2013). Therefore, opportunities for development are reinforced by participation and communication among physicians. A disruptive context needs an accelerated and effective personal development which would be clearly fostered by providing physicians with direct access to sources of knowledge or by promoting work units' autonomy for decision making and for self-organizing (Salas-Vallina et al., 2020). In addition, opportunities for development could be implemented by developing a climate of equality, harmony and mutual respect, and reducing bureaucratic barriers of procedures. These conditions expand the capacity to deal with job demands (high risk of contagion, uncertainty in treatments and work overload) through new job resources new knowledge and access to colleagues that lead to new personal resources (Shantz et al., 2016) such as resilience. In turn, the sources of physicians' stress are reduced as the capacity to deal with highly demanding work conditions is increased.

Employee perceptions of participation and voice is a current topic of interest in management literature. Participation promotes commitment and contribution match, and the need for relatedness because it fosters employee inclusion (Roberson and Perry, 2022), which enhances a positive employment relationship (Guest, 2017). For physicians working in specialised medical units it is essential participation in decision making and mutual contributions to diagnose patients. But participation becomes an urgent need in disruptive contexts where decision taking and knowledge sharing is central. Physicians' participation develops the need for autonomy, which is crucial form medical specialists because they are autonomous by nature, and they have to make decisions at their own discretion. Direct participation is a job resource (Bakker et al., 2003) as it facilitates more

effective work by sharing one's own resources, which also reduces the pressure of assuming individually high demands (Bakker et al, 2011). In turn, participation is related to the development of new personal resources through increased autonomy, as it involves the higher skill use, job quality and it positively should impact on well-being (Gallie, 2013). Participative rather than judgmental performance management promotes employee well-being (Guest, 2017). Direct participation in the medical context involves that hospitals and subsequently specialised medical units can better manage work complexity (Bacon et al., 2015) as it transmits signals of listening to physicians, through protocols of easy communication and by devoting time to regular meetings where the head gives voice and places value on cooperation and partnership, thus respecting principes of mutuality (Tailby et al., 2004). This would result in an improved integration of physicians, which widens personal job resources aimed at addressing highly demanding circumstances, in turn reducing job demands (Bakker et al, 2011) and consequences for physicians' health.

Medical specialists need to receive and fluently communicate knowledge to colleagues to stay up to date with clinical protocols and help other physicians make critical decisions. Accordingly, communication is a critical job resource that helps to meet commitment and contribution match, and it also fills the need for relatedness because communication helps employees achieve work objectives and reduce job demands (Demerouti et al., 2001). Communication has recently been highlighted as a crucial aspect to better treat employees, as it involves improved organisational sustainability from a human approach (Griep et al., 2022). For medical units, communication between the team members acts as a job resource because allows them to increase their knowledge base and get emotional support from colleagues. This job resource should reduce job demands as physicians become more competent, and it should increase personal resources such as

resilience because communication establishes the basic conditions to give and receive the specific resources one needs to deal with a particular problem. Therefore, communication acts as the magic bullet against job demands, which in turn should reduce physicians' burnout. Communication works in parallel and together with participation and opportunities for development, and each of these practices reinforce each other as they acts more effectively taken together. Specialised medical units foster communication by defining work tasks that involve teamwork in some stages, or through clinical sessions where physicians review the latest knowledge, with a clear impact on personal resources, or by including informal meetings to share experiences and feelings at work, which improves quality of patient care and physicians' well-being (or reduces burnout). A key avenue for HRM research is to investigate whether job demands and job resources are involved in the HRM-outcomes relationship in a disruptive context. Unexpected disasters can undermine human resource capability and firm performance (Merlot and de Cieri, 2012) and for those living in extreme, uncertain job conditions, a disruptive context brings an even more challenging situation. Accordingly, we suggest that the proposed set of HR practices can act as job resources that physicians aim to maintain to prevent the loss of other resources, thus reducing burnout. Opportunities for development, communication and participative decision making, taken together, might provide a sense of coherence, which has been theorized as a crucial stress-resistance resource (Antonovsky, 1979), which reduces the sense of work alienation (the opposite to work engagement), and vulnerability to disease (Moss, 1973). The next section delves into the potential mediating role of job demands and job resources in the relationship between HR practices, burnout, and performance.

The mediating role of job demands and job resources

The present research suggests a double mediation effect of job demands and job resources in the relationship between HR practices and two key outcomes: burnout and quality of patient care. Several meta-analyses have revealed that organisational aspects, such as HR practices, can diminish burnout symptoms. However, their effects are not always sufficiently clear, especially when exploring the simultaneous effect of HR practices on employees' performance and well-being. A fundamental explanation for this could be that these studies do not consider context-specific aspects, key job resources, and the idea of mutuality raised by Guest (2017). Further, major work and life events (such as a pandemic and the derived stress or work overload) can disrupt the effective use of job resources and harm employees smooth functioning at work (Bakker et al., 2019). We address this issue by focusing on physicians attending COVID-19 patients at times of saturated medical services, and under the JD-R model, as recent studies have claimed that the structural causes of burnout in the work context, namely job demands and job resources, need to be considered in the study of HRM (Bakker and de Vries, 2021).

The JD-R model explains how two processes, health impairment and motivation, could be the result of two types of working conditions. The first type refers to job demands, or the physical, social, or organizational characteristics of the job that require an extra effort from the employee and involve physical or psychological costs. Job demands have a negative effect on employees when they cannot meet those demands and take action because he or she has not recovered satisfactorily. The second type of working conditions regards to job resources, or the physical, psychological, social or organizational factors that can potentially reduce job demands and their negative effects, and/ or lead to superior performance, and/or promote personal growth, learning and

development (Demerouti et al., 2001). Job resources refer to work characteristics that define the physical, cognitive and emotional responses of employees.

First, we propose a mediating role of job demands in the relationship between HR practices and the two proposed outcomes (burnout and quality of patient care). Under the JD-R model, HR practices, acting as a key job resource, would reduce job demands. Job resources enhance employees' learning, development and growth, and also facilitate achieving work goals (Bakker and Demerouti, 2007). At the same time, job resources play an intrinsic motivational role, because they fulfill basic psychological needs. The joint effect of opportunities for development, participation in decision-making, and communication is expected to mobilize a set of job resources infusing a positive state of mind towards the job. These three practices create opportunities for personal growth, learning and development, and consequently they facilitate achieve work goals with lower psychological costs (Van Ruysseveldt et al., 2011).

In turn, job demands might harm employees' burnout. The health impairment process posits that job demands result in job strain, including feelings of exhaustion (intense mental fatigue). In this vein, medical specialists who continuously experience high job demands are likely to feel exhausted. High work pressure, excessive work overload and job strain are examples of medical specialists working conditions. Further, job demands might negatively affect physicians' quality of patient care. Physicians' work stress and emotional exhaustion have been identified as being significantly higher than that of the general population (Schrijver, 2016) which can harm their performance and induce them to leave the profession (Williams et al., 2010). While the relationship between job demands and exhaustion has been empirically tested in literature, the effect of job demands and performance reveals contradictory findings showing positive, negative, curvilinear and no effects (Lu et al., 2017). This might be due to the lack of

studies exploring the specific job resources that are more effective in reducing job demands in an adequate form.

Second, this research also suggests a mediating role of job resources in the relationship between HR practices and the two proposed outcomes. HR practices are expected to foster new resources by providing appropriate development opportunities**,** thus satisfying the needs for competence and autonomy. The motivational process argues that job resources lead to work engagement and organizational commitment. Autonomy or participation in decision making have been identified as key job resources that foster different forms of commitment (Bakker et al., 2003). Social support, feedback or autonomy might initiate a motivational movement leading to increased positive attitudes, such as engagement (Demerouti et al., 2001). A particularly relevant extension of the JD-R model involves the introduction of personal resources (Xanthopoulou et al., 2007). Personal resources are positive perceptions related to self-efficacy, self-esteem and optimism, which in turn can foster work engagement. According to Hofboll et al. (2003), a personal resource is a person's self-belief that he or she can control their work environment. Because job resources can lead to personal resources (Xanthopoulou et al., 2007), we suggest that HR practices, as a job resource, might positively impact on employee resilience (personal resource).

The concept of resilience is a is a prominent concept in HRM research (Stokes et al., 2019), though it is framed in a multidisciplinary research field, involving psychological Kobasa et al. (1982), social (Berthoz, 2013), disaster management (Fiksel, 2015), and managerial and organization studies (Seville, 2009). We follow Kobasa et al. (1982) approach of resilience as a personal resource that can counterbalance the harming effects of stressful life events, together with a managerial focus. We also consider a disaster management approach, by including the Fiksel (2015) "resilience thinking"

concept and the idea that employees and organizations need to recognise and capture opportunities to deal with unexpected disruptions. As Seville (2009), resilience is contextual, and a culture of "commitment to resilience" that uses knowledge, learns from errors and realizes the importance of networks is fundamental to develop this "resistance resource". Kobasa et al. (1982) introduced the concept of "resistance resource" and argued that individual resilience can emerge from three personality dispositions: the commitment disposition (degree of involvement in a task), the control disposition (feeling the capacity to influence in life contingencies), and the challenge disposition (changes in life are seen as normal). Once framed and delimited the concept of resilience, we will develop arguments to explain why HR practices positively impact on individual resilience, and why individual resilience might diminish physicians' burnout and improve quality of patient care.

The proposed HR practices might foster individual resilience because practices such as career development have been identified as a fundamental practice in promoting resilience (Rodríguez-Sánchez, 2021). Khan et al. (2019) explored how HR practices, including development opportunities and information-sharing, increase employee resilience in disruptive contexts. Higher levels of communication satisfy the need for relatedness, facilitate personal connections and a rich exchange of information, and social mechanisms, including participation in decision-making, thus activating resilience (Powley, 2009; Guest, 2017). Further, prior research has shown that self-efficacy, as a result of increased capabilities and skills, is a key attribute of healthcare professionals' resilience (Cooper et al., 2020).

At the same time, resilience can lead to superior levels of well-being and performance (for a meta-analysis see Lupsa et al., 2019). According to Luthans et al. (2010), resilience is a key personal capacity for strengthening employees' well-being, and

can promote an open mindset towards workplace changes, adaptability and flexibility, which are essential to deal with disruptive environments. Our model follows the *resource caravan approach* (Hobfoll, 2018), which states that resources in combination are more effective than resources in isolation. In this vein, the HR practices we suggest and resilience in combination might cause individuals to feel they can control and have a successful impact in their environment (Hobfoll et al., 2018). Personal resources are functional in achieving objectives, protecting individuals from psychological costs, and stimulating personal growth. Employees who perceive positive personal job resources are intrinsically motivated to achieve their goals and, in consequence, this fosters satisfaction (Luthans and Youssef, 2007). In this line, the availability of organizational resources (i.e., HR practices) and the absence of job demands should diminish feelings of burnout and increase energy at work (Xiao and Cooke, 2022). This echoes research showing that perceptions of supportive resources and low job demands develop employees' learning processes because it satisfies employees' innate needs for autonomy, competence, and relatedness (Deci and Ryan, 2000), in turn making employees more competent and oriented towards achieving work objectives.

In sum, to date there has been no consensus on what set of HR practices should be used to foster employee resilience in healthcare, and research on how resilience improves the quality of working life as a consequence of HR practices is still limited (Copper et al., 2019).

For all the above, and on the basis of the JD-R model, we expect the proposed HR practices, namely opportunities for development, communication, and participative decision making, to be crucial in the development of job resources and the decrease of job demands, in turn, mitigating burnout and improving quality of patient care. Accordingly, we propose:

H1a: Job demands positively mediate the relationship between HR *practices and burnout.*

H1b: Job demands negatively mediate the relationship between HR *practices and the quality of patient care.*

H2a: Resilience negatively mediates the relationship between HR *practices and burnout.*

H2a: Resilience positively mediates the relationship between HR *practices and the quality of patient care.*

4. Method and measurement

Sample and procedure

This study focused on physicians working in specialised medical units in healthcare organisations, a large group in which it remains unclear how HR practices impact on both burnout and performance. Specialised medical units consist of work units with medical specialists, nurses and administrative staff. The head of the unit is a physician, normally with little or no managerial training. Although specialised medical units require coordination between them, in practice they operate as separate and quite isolated work units within hospitals. They are under-resourced units with high work overloads, with lack of managerial training of heads. For this reasons, there is still much research to be carried out in order to offer new ways of managing specialised physicians. This medical units have been responsible for attending COVID-19 patients under the perfect storm: uncertainty, high risk of contagion, fight against an aggressive and novel virus, low resources (including scarce human resources), lack of action guidelines from above and personal suffering for the deaths of patients. But recent exploratory research showed that some medical units remained resilient (Salas-Vallina et al., 2020), hence leaving room for confirmatory models considering how HR practices, job demands and job resources impact on physicians. Specialised medical units had to reconfigure

themselves to attend COVID-19 patients and other urgent pathologies by managing their own resources. Data was gathered via a survey administered during the COVID-19 pandemic in 2021, in which items referred to experiences and perceptions while attending to COVID-19 patients. We had the support of four medical societies to gather data. Referent national medical societies supported this research by sending these questionnaires to their member physicians. A total of 499 questionnaires were returned. 39% were male, with an average seniority of 12,72 years. With respect to the age distribution, 3.82% of the total sample were between 18-29 years old, 17.43% between 30-39 years old, 27.25% between 40-49 years old, 36.67% between 50-59 years old, and 14.83% were above 59 years old.

Measures

HR practices were measured based on Shantz et al. (2016). They included opportunities for development, participation in decision-making, and communication, which are practices that could be managed by the heads of medical units. We used employee rather than managerial ratings to enable us to capture perceived HR practices. The scale had nine items, ranging from one (totally disagree) to seven (totally agree) (i.e., "I am able to make suggestions to improve the work of my team/department"). Cronbach alphas was .876 for opportunities for development), .947 for participation in decision-making), and .724 for communication. Cronbach alpha for the HR practices second order construct was .932.

Job demands was adapted from Schaufeli's (2015) scale. This is a seven-item scale, ranging from one (totally disagree) to seven (totally agree). (i.e., "My work requires great attention and concentration"; α =.656).

Resilience was measured using Stephens et al.'s (2013) scale, adapted from Caza et al. (2010). This is a four-item measurement scale, ranging from one (totally disagree) to seven (totally agree) (i.e., "I feel that I am progressing in my work because I learn from my mistakes"; α =.839).

Burnout was assessed using the BPH measurement scale, based on the Spanish Burnout Inventory (SBI) (Gil-Monte et al., 2009). This is a five-item scale, ranging from one (totally disagree) to seven (totally agree). (i.e., "I think I'm exhausted by work"; α =.885).

Quality of patient care was measured based on Hanefeld et al. (2017). This is a three-item measurement scale, ranging from one (totally disagree) to seven (totally agree) (i.e., "I feel that my role makes a difference to patients/service users"; α =0.832).

The *control variables* were employee age and gender. Both were coded through a binary variable.

Common method bias

Due to the cross-sectional nature of the research, common method bias concerns arose over internal validity (Podsakoff et al., 2012). To check potential common method bias issues, we took *a priori* and *post hoc* steps to minimise the potential risk of common method bias. First, our sample was made up of physicians, and we assumed that their high level of knowledge meant they would be able to understand and answer the survey questions. Second, physicians are used to collaborating in surveys, and therefore they are normally willing to take part. To facilitate this, we explained the aim of the research at the beginning of the questionnaire, and we signed agreements with medical societies so they could provide more details about the study. We also committed to drawing up a

report with the practical implications of the research. Third, we wrote simple, clear questions.

To ensure that critical semantic feelings were transferred accurately across languages (Brislin, 1970), an initial sample of ten physicians was used to check that the questions were clearly understood. We also carried out interviews with them to refine the language used in the questionnaire. We also changed the scale's direction to reduce response bias.

Post hoc measures were also taken to reduce potential common method bias. We checked for full collinearity as a comprehensive procedure for the simultaneous evaluation of both vertical and lateral collinearity (Kock et al., 2015). Following this procedure, variance inflation factors (VIFs) were produced for all latent variables. Normally, if all VIFs included in a full collinearity test are equal to or lower than 3.3, we can consider that the model does not suffer from common method bias. The VIF values generated for all the latent variables in our model confirmed no collinearity issues (table 1).

Insert Table 1 about here

Procedure

Our hypotheses were checked using Smart PLS 4.0, which is an appropriate method for research prediction in areas such as human resource management (Ringle et al., 2020). PLS-SEM focuses on maximising the explained variance of dependent variables. A bootstrapping method was used with 10,000 runs to check the significance of the suggested connections between variables.

5. Findings

Preliminary Analyses

The means, standard deviations, and correlations are presented in Table 2. The correlation was significant and negative between HR practices and job demands, HR practices and burnout, resilience and job demands, and resilience and burnout.

First, to test the validity of the HR practices construct, we conducted a series of confirmatory factor analyses using the R package "lavaan" (Rosseel, 2012). We first studied a three-factor model that differentiates each dimension (namely opportunities for development, participative decision making, and communication). Second, we run a single factor model where all the dimensions were modelled as undistinguishable. The results show that the first model presented the better fit to the data (CFI = .99, TLI = .98, RMSEA = .058, SRMR = .028), while the second model presented a lower/unacceptable fit (Schreiber et al., 2006) (CFI = .89, TLI = .86, RMSEA = .152, SRMR = .050). Overall, those results indicate that the three dimensions used to constitute the HR practices construct are empirically distinguishable, offering therefore empirical support for the construct validity.

Insert Table 2 about here

Then, we assessed the measurement model, followed by the relationships between the proposed constructs to evaluate the proposed model. The SRMR fit index was used to confirm the model fit. Values under 0.10 reveal a good fit (Kline, 2005). The results reported a value of 0.084, which confirms a good model fit. Convergent validity and discriminant validity were used (Hair et al., 2017) to evaluate the measurement model. Factor loadings, average variance extracted (AVE) and composite reliability (CR)

enabled us to evaluate convergent validity. Items with low loadings were removed (item 3 from the communication measurement scale, items 1, 2, 3 from the job demands scale, and item 1 from the quality of patient care scale). The AVE and CR values were above 0.5 and 0.7, respectively (table 3). Convergent validity was confirmed as AVE was above 0.4 and CR was above 0.6 (Fornell and Larcker, 1981). Discriminant validity was assessed using the HTMT index. Values above 0.85 reveal a problem in discriminant validity (Franke and Sarstedt, 2019). Table 4 indicates that HTM values were below 0.85, thus supporting discriminant validity between the constructs. The predictive accuracy of the model was also checked by means of the Q^2 predict index (table 5). The results show that the prediction error was above 0, which confirms predictive significance. Lateral collinearity was also evaluated using VIF values, which have to be lower than 3.3 (Diamantopoulos and Siguaw, 2006). The results shows that all VIF values were below 3.3, supporting discriminant validity.

Insert Table 3 about here

Insert Table 4 about here

Insert Table 5 about here

Finally, we checked the structural model. Hypothesis 1 predicted the mediation effect of job demands in the relationship between HR practices and burnout. To assess mediation, we analysed confidence intervals (Zhao et al., 2010), which is a more robust

measure than examining pseudo t values (Mackinnon et al., 2004). The results show that 0 is not included in the confidence intervals of the indirect effect (β = -.189, t = 7.813, LL = -.239, UL = -.143, $p < 0.05$), suggesting a mediation effect. Hypothesis 2 predicted the mediation effect of job demands in the relationship between HR practices and quality of patient care. The results also show that 0 is not included in the confidence intervals of the indirect effect (β = .084, t = 3.741, LL = .045, UL = .132, $p < 0.05$), suggesting a mediation effect. Hypothesis 3 suggested the mediation effect of resilience in the relationship between HR practices and burnout. The results revealed that 0 is not included in the confidence interval values, (β = -.139, t = 6.036, LL = -.187, UL = -.097, $p < 0.05$), thus supporting mediation. Hypothesis 4 argued the mediation effect of resilience in the relationship between HR practices and quality of patient care. The results revealed that 0 is not included in the confidence interval values, (β = 0.09, t = 4.514, LL = 0.059, UL = 0.144, $p < 0.05$), thus revealing a mediation effect. Table 6 and figure 1 show the results of the structural model. The control variable of gender showed a significant effect on burnout, which means that men tend to present lower burnout levels compared to women.

Insert Table 6 about here

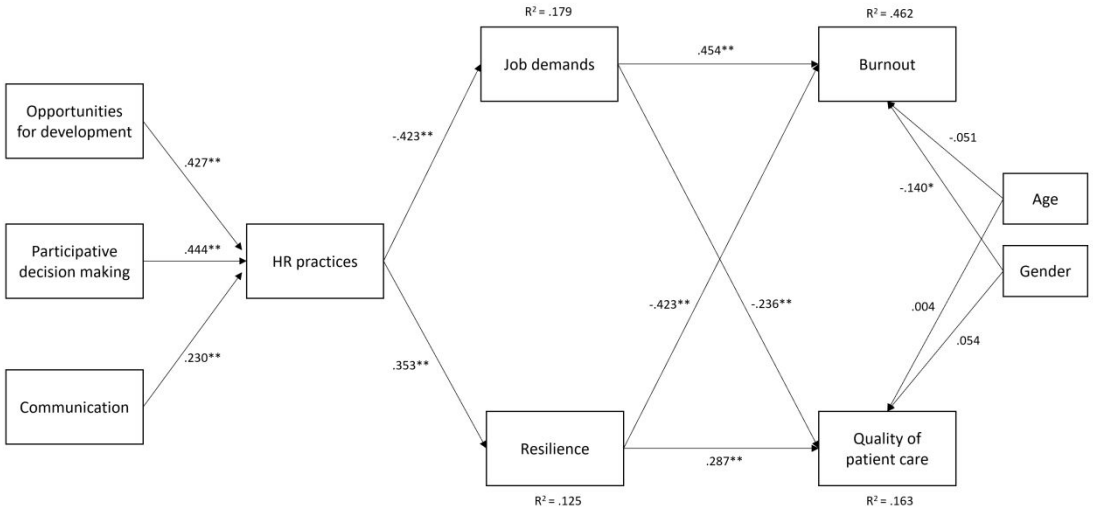

Figure 1. Results of the structural model.
Notes: * $p < .05$; ** $p < .001$

6. Discussion

This research aimed to advance HRM research by exploring how a new set of HR practices has a simultaneous and positive effect on burnout and performance through job demands and job resources. By placing it in the context of environmental disruptions, we sought to generate actionable theory in HRM research. The COVID-19 pandemic exemplified an environmental disruption, due to its unexpectedness and highly challenging managerial impact. Recent research suggests that COVID-19 was an unpredictable specific stressor that gave employees a perception of insecurity and generated concern (Trougakos et al., 2020). However, very few studies have explored which HR practices simultaneously reduce burnout and improve performance in a disruptive context. This is why research demands further attention for the HRM-burnout relationship (Cheng et al., 2022). To fill this void, our empirical research puts forward a distinctive model by offering a set of HR practices built on positive employment relationship theory and SDT. Our results make the following fundamental contributions.

First, research into disruptive contexts is still an emerging topic (Oh and Oetzel, 2022), particularly for HRM scholars. Our research addresses the major concern of employee burnout and the feasibility of simultaneously reducing burnout and improving performance in the context of the COVID-19 pandemic. There is growing interest in HRM literature about the role of HRM in building socially responsible organisations (Kim et al., 2022) or, in other words, "how can we stop making a bad situation worse" (Butterick and Charlwood, 2021). The global COVID-19 health crisis mobilised a massive number of health professionals (Denis et al., 2021), and securing the health and well-being of those employees in contexts which are life-threatening and emotionally demanding is a major HRM challenge. However, HRM and disruptions in health care are still under research development. This study has the strong point of using a sample of first-line healthcare employees tackling a disruptive context.

Second, research on sector-specific human resources, such as medical specialists working in hospitals, requires theoretical and empirical progress (Boselie et al., 2021). This study explores the effectiveness of HR practices among physicians exposed to extreme stress, uncertainty, risk and fear. In particular, we checked if a set of HR practices drawing on quality of working life and well-being research reduce both physicians' burnout and improve their performance. This set of HR practices puts the spotlight on social integration, growth, development, and individual proactivity, all of them key conditions according to Walton (1974), and Grote and Guest's (2017) quality of working life groundings. The proposed set of HR practices is therefore based on a positive employment relationship and mutuality between employers and employees, and supported by SDT theory, thus suggesting beneficial outcomes for both well-being and performance. The results showed that the HR practices based on opportunities for development, communication, and participative decision making can be appropriately

measured a set of HR practices, under challenging disruptive circumstances. Our findings advance HR research and opens new paths as a set of HR practices with the capability of dealing with environmental disruptions.

Third, we even go a step further, providing a novel contribution by suggesting that mutuality, or the simultaneous improvement of well-being and performance, is a function of balancing work demands and the resources available at work. There are contradictory findings about the effects of job demands on healthcare professionals. Gordon et al. (2018) found that reducing job demands might be negative in a healthcare context, but at the same time it was established that hindering demands reduced exhaustion (Salmela-Aro et al., 2009). Wheeler et al. (2012) argued that, in healthcare, insufficient resources can reduce employees' motivation and engagement (the opposite of burnout), increase their intention to leave the organisation, and diminish their energy to perform tasks. Conversely, employees with greater resources are better protected against losing them and are more willing to invest in them (Hobfoll, 2018). We followed SDT principles by which when individuals fulfill their basic psychological needs of autonomy, competence, and relatedness, they improve their well-being. But also, HR practices are compatible with enhanced performance. Hobfoll's (2018) *resource caravan approach,* which is a model that identifies and manages resources more efficiently. According to Miao et al. (2021), resources in combination explain mediation effects better (Miao et al., 2021), leading to increased well-being (Haar and Harris, 2021) and performance. In this vein, we introduced resilience as a key job resource which, in combination with HR practices, had a negative impact on physicians' burnout and increased the quality of patient care. Previous research has explored how organisational resilience is fostered by HR systems in the context of multinational enterprises, introducing global talent management as an antecedent of organisational resilience in the disruption caused by the COVID-19

pandemic (Lee et al., 2022). Our research considers HR practices as a crucial job resource, enabling employees to develop more resources at individual level (resilience) and to protect themselves from a loss of resources, resulting in burnout. In this sense, HR practices act as a structural resource to reduce burnout (Bakker and de Vries, 2021). In other words, when medical specialists perceive that their organisation offers HR practices that provide them with appropriate engagement and resources that resolve problems affecting their well-being, they understand that they work in a safer context (Labrague and De los Santos, 2020). This research also revealed that when job demands increase and remain very high, employees start to move into a loss spiral of health impairment, job burnout (Demerouti et al., 2019), and poorer performance. The COR theory supports the findings, confirming that having more resources improves well-being and potentially reduces burnout because it provides employees with more tools to manage stressors. Resources may come at organisation level but are perceived at individual level (such as HR practices).

In sum, the job demands-resources model explains the effectiveness of HR practices, as it buffers job resources resulting in increased well-being and performance, and reduces job demands, which is consistent with the potential of HRM in fostering quality of working life (Peccei and Van de Voorde, 2019) and mutual gains (Guest, 2017).

Finally, we offer an adapted version of the SBI (Gil-Monte et al., 2009) instrument by proposing the BPH measurement scale. The scale showed a good fit and revealed that it can capture physicians' burnout in healthcare. This new version of the SBI measurement scale presents the key advantage of its reduced design, which facilitates data gathering.

Future research and limitations

Our research has several limitations, and we also propose potential and interesting research opportunities for future investigation. First, the sample is limited to 499 observations. Future studies could contribution with new validations in larger samples. Second, our empirical setting was medical specialists working in hospitals. Hence, the characteristics of the healthcare context should be taken into consideration, and future research could test our empirical model in a different sector. Companies have varying cultures and objectives, and our model could reveal different results. Third, we took HR practices as a bundle, under the premise that they have synergies and reinforce each other. However, we encourage scholars to examine the effect of individual HR practices on job demands and job resources, to provide a more detailed picture of the model. Fourth, future research could examine other outcomes beyond job burnout and quality of patient care, including cost reduction, knowledge transfer, and pro-social behaviours.

Practice implications

This research involves practical implications for society and organizations. First, the proposed HR practices have a direct impact on citizens quality of life. Healthcare users would find more guarantees of quality of treatment by means of HR practices. Further, future disruptive bacterial or viral pandemic, will be better addressed. Then, a first practice implication refers to the general society. A second practical implication relates to the economic impact in public healthcare at the public policy level. Although physicians have a strong training, what remains to be done is to improve the way healthcare is managed. This model has a clear effect on physicians' performance, which could be translated in terms of costs and public expenditure. Third, healthcare organizations now have a managerial model that is able to reduce physicians' burnout and at the same time improve performance, even under disruptive circumstances.

Opportunities for development, participation in decision-making, and communication involve a synergistic group of HR practices that are crucial to dealing with challenging contexts. HR managers should ask physicians about how they would address particular challenges, establish regular formal and informal meetings to promote participation and communication, and stick to the compromise of developing physicians. In this regard, HR managers, and heads of medical units should provide continuous training to physicians, facilitate them resources to attend scientific conferences and define coordination procedures between specialised medical services. Heads of medical units should keep committed with a climate of trust, knowledge sharing and cooperation, and they should give value to each member of their team. HR managers should also track physicians' development needs, and the quality of communication between physicians in and between work units by means of interviews and questionnaires. HR policies should also put the focus on giving autonomy to work units for self-organising, while asking them for advice and providing with those resources that prioritise opportunities for development, participation and communication.

7. References

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	BO	HR practices	JD	QC	RE
BO		2.022	1.403	1.972	1.601
HR practices	1.403		1.385	1.415	1.477
JD	1.168	1.486		1.379	1.395
QC	1.291	1.307	1.283		1.264
RE	1.182	1.511	1.362	1.477	

Table 1. Full collinearity test.
Notes: RE = Resilience; JD = Job demands; BO = Burnout; QC = Quality of patient care

Table 2. Means, standard deviations and correlations

	MEAN	SD	AGE	GENDER	E-HRM	RE	JD	BO
AGE	3.200	1.044						
GENDER	.600	.492	-.215**					
E-HRM	4.883	1.200	-.031	-.124				
RE	5.720	.900	-.042	-.033	.418**			
JD	4.801	1.285	-.035	.130	-.296**	-.029		
BO	3.185	1.146	-.088	.065	-.471**	-.465**	.388**	
QC	5.180	1.147	.041	-.065	.465**	.329**	-.158*	-.293**

N.B.: **p ≤ .01 (two-tailed), *p ≤ .05 (two-tailed). STAB = Job stability; TEN = Tenure; E-HRM = Engaging human resource management; RE = Resilience; JD = Job demands; BO = Burnout; QC = Quality of patient care

Factors	Factor loading	t-value	Cronbach Alpha	CR	AVE
HR practices			.932	.939	.684
ODE			.876	.891	.802
ODE1	.821***	40.475			
ODE2	.922***	107.674			
ODE3	.940***	190.469			
PDM			.947	.947	.904
PDM1	.946***	173.543			
PDM2	.954***	193.977			
PDM3	.952***	165.863			
COM			.724	.727	.784
COM1	.894***	100.407			
COM2	.876***	65.940			
Resilience			.839	.842	.608
RE1	.745***	23.439			
RE2	.787***	29.832			
RE3	.828***	40.375			
RE4	.779***	25.252			
RE5	.756***	26.561			
Job demands			.656	.674	.491
JD1	.689***	17.269			
JD2	.690***	17.912			
JD3	.791***	33.751			
JD4	.624***	14.529			
Burnout			.885	.888	.558
BO1	.749***	28.250			
BO2	.670***	21.996			
BO3	.779***	35.266			
BO4	.677***	23.386			
BO5	.796***	42.329			
BO6	.830***	46.133			
BO7	.740***	28.386			
BO8	.718***	23.372			
Quality of patient care			.832	.834	.748
QC1	.865***	46.443			
QC2	.881***	51.049			
QC3	.850***	44.656			

Table 3. Results of the measurement model

Notes: ODE = Opportunities for development; PDM = Participative decision making; COM = Communication; RE = Resilience; JD = Job demands; BO = Burnout; QC = Quality of patient care; CR = composite reliability; AVE = Average variance extracted; ***$p \leq .001$

	HR practices	RE	JD	BO
HR practices				
RE	.378			
JD	.468	.207		
BO	.489	.566	.736	
QC	.478	.386	.350	.369

Table 4. Discriminant validity (htmt)
Notes: RE = Resilience; JD = Job demands; BO = Burnout; QC = Quality of patient care

Factor	Q^2 predict
BO	.201
JD	.144
QC	.113
RE	.110

Table 5. Explanatory capacity of the model
Notes: BO = Burnout; JD = Job demands; QC = Quality of patient care; RE = Resilience

Hypotheses	Coefficient	*t*-value	Percentile Lower	Percentile Upper	VIF
H1. Mediation hypothesis: JD mediates HR practices → BO					
HR practices → JD	-.387	9.591	-.465	-.309	1.000
JD → BO	.488	14.557	.420	.553	1.036
HR practices → JD → BO	-.189	7.813	-.239	-.143	
H2. Mediation hypothesis: JD mediates HR practices → QC					
HR practices → JD	-.387	9.591	-.465	-.309	1.000
JD → QC	-.217	4.679	-.309	-.128	1.036
HR practices → JD → QC	.084	3.741	.045	.132	
H3. Mediation hypothesis: RES mediates HR practices → BO					
HR practices → RE	.339	8.973	.265	.412	1.000
RE → BO	-.411	9.590	-.493	-.327	1.037
HR practices → RE → BO	-.139	6.036	-.187	-.097	
H4. Mediation hypothesis: RES mediates HR practices → QC					
HR practices → RE	.339	8.973	.265	.412	1.000
RE → QC	.290	6.109	.195	.383	1.037
HR practices → RE → QC	.098	4.514	.059	.144	

Table 6. Results of path analysis
Notes: RE = Resilience; JD = Job demands; BO = Burnout; QC = Quality of patient care.
***p < .001; **p < .05.

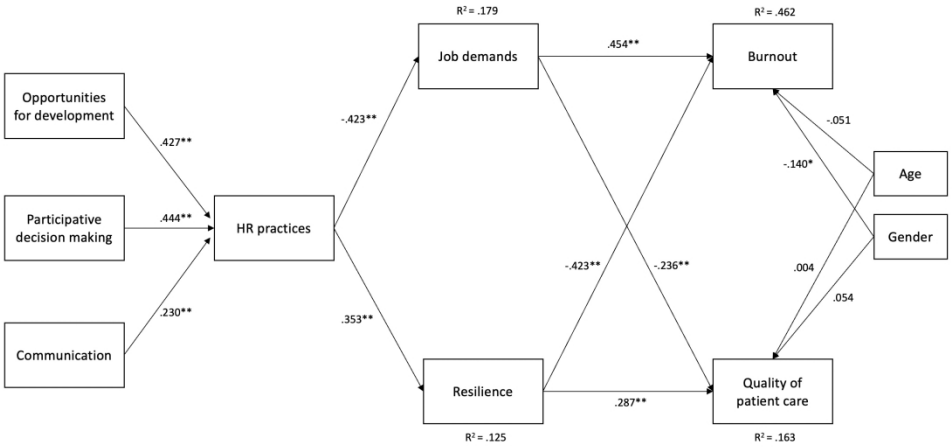

Figure 1. Results of the structural model.
Notes: * p < .05; ** p < .001

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