


RESEARCH ARTICLE

High-performance HR practices, job demands and employee well-being: The moderating role of managerial support

Suhaer Yunus¹  | Keith Whitfield² | Ahmed Mohammed Sayed Mostafa^{3,4}

¹Lincoln International Business School,
University of Lincoln, Lincoln, UK

²Cardiff Business School, Cardiff University,
Cardiff, UK

³Leeds University Business School, University
of Leeds, Leeds, UK

⁴Faculty of Commerce, Assiut University,
Assiut, Egypt

Correspondence

Suhaer Yunus.

Email: syunus@lincoln.ac.uk

Abstract

Drawing on the labour process theory and the job-demands resources model, this study challenges the assumption of beneficial effects of high-performance HR practices (HPHRP). The study argues that such practices lead to heightened work demands, which in turn compromise employees' well-being. The study also argues that the negative consequences associated with HPHRP can be ameliorated when employees receive support from their managers. To test the study's moderated mediation model, multisource matched employer-employee data from the Workplace Employment Relations Survey 2011 is used. Results of generalised multilevel structural equation modelling in STATA revealed that the relationship between HPHRP and well-being (anxiety and depression) is mediated by Job demands (JD). Furthermore, the relationship between JD and both anxiety and depression is moderated by Managerial support (MS), such that when the level of MS is high, the positive relationship between HPHRP and both anxiety and depression via JD is weaker. Taken together, the findings of the study advance our understanding of why and when HPHRP may impair employees' well-being.

KEYWORDS

employee well-being, high-performance HR practices, job demands, managerial support

1 | INTRODUCTION

Despite an extensive academic and practitioner interest in well-being at work, the nature of the association between high-performance HR practices (HPHRP) and employee well-being remains inconclusive (Cañibano, 2013; Jensen & Van De Voorde, 2016). High-performance HR practices can be described as a set of innovative human resource management (HRM) practices, work arrangements and processes, which, when used in combination, are mutually reinforcing and yield synergistic benefits (Huselid, 1995). There has been a considerable debate on how HPHRP may relate to well-being. Two conflicting views have emerged. The mainstream mutual gains view holds that HPHRP

bring positive outcomes for employers and fosters employee well-being. In contrast, the labour process perspective portrays more conflict-generating outcomes of HPHRP, which compromise employee well-being (Ogbonnaya & Messersmith, 2019). These conflicting views can be attributed to the multidimensional nature of employee well-being related to psychological, physical, and social functioning at work (Grant et al., 2007; Peccei et al., 2013; Van De Voorde et al., 2012). Most studies arguing a positive association between HPHRP and well-being are heavily skewed towards evaluating HPHRP's association with hedonic well-being, such as job satisfaction (Grant et al., 2007). Consequences of HPHRP on employees' physical well-being, in terms of both objective physiological health and

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subjective psychological health, such as anxiety and depression, are relatively less explored (Jensen & Van De Voorde, 2016; Peccei & Van De Voorde, 2019). This dearth of focus on health-related well-being is problematic as it shows an overly narrow view of employees' work-related well-being in HPHRP research. Essentially, the foci of well-being dimensions differ. Job satisfaction focuses on individuals' subjective experiences of happiness and functioning at work (Grant et al., 2007). On the other hand, work-related anxiety and depression represent emotional responses of poor mental health at work (Warr, 1990). Considering the importance of mental health for effective functioning at work, a holistic focus on health-related well-being would therefore seem timely and important. As such, the limited empirical evidence on HPHRP and health-related forms of well-being aligns with the labour process perspective. This suggests that HPHRP may be detrimental for employees' well-being because these intensify job demands (JD) and pressure (Godard, 2001; Peccei & Van De Voorde, 2019). However, relatively little attention has yet been paid to evaluating if JD (i.e., the feeling that work is more demanding) could explain the negative association between HPHRP and employees' health-related well-being (Ogbonnaya et al., 2017).

Beyond the issue of how HPHRP influence employees' well-being, there is a dearth of theory and evidence regarding how this association might become mutually beneficial for organisations and their employees. Extant research has documented alternative explanations of the linkage between HPHRP and well-being. Scholars have identified perceived managerial intentions for implementing HPHRP as a motivator or inhibitor of well-being (e.g., Van De Voorde & Beijer, 2015; Zhang et al., 2014). Studies have also linked certain types of high-performance work systems (HPWS) with well-being and considered contrasting ideal types of high-commitment and low-commitment HRM strategies as "coherent packages" to explain their well-being effects (e.g., Gould-Williams & Mostafa, 2021; Wood et al., 2012). Attributing well-being to a type or strategy of HPHRP may only partially solve the debate regarding the impact of HPHRP on employee well-being. This is because operationally it may be difficult to keep different HPHRP systems or strategies apart. Recently, research has begun to explore the differential impacts of components of HPHRP on different types of well-being (e.g., Ho & Kuvaas, 2020; Jiang et al., 2012; Ogbonnaya & Messersmith, 2019; Van De Voorde et al., 2012). Following this stream of research, scholars (e.g., Conway et al., 2016; Jackson et al., 2014; Topcic et al., 2016) argue that some HPHRP are challenging, and activate an energy depletion process, which reduces well-being. Contrarily, others act as job resources and activate a motivational process, which promotes well-being. Studies have also focussed on incorporating multiple dimensions of well-being simultaneously to evaluate well-being trade-offs. Yet, mixed evidence emerged, which demonstrated equally positive effects of HPHRP on different dimensions of well-being (e.g., Veld & Alfes, 2017), a unilateral destructive effect (e.g., Heffernan & Dundon, 2016) and curvilinear effects (e.g., Godard, 2001; Ho & Kuvaas, 2020). The above evidence calls for further enquiry of the well-being relationship in HPHRP research, specifically evaluating the boundary conditions under which employee well-being can be fostered (Marescaux et al., 2019).

Given this research gap, the main aim of the present study is to improve our understanding of how HPHRP relate to employee well-being and consider when this association is likely to become positive. In so doing, the study builds on the HPHRP research that posits that perceived work intensification or excessive JD associated with HPHRP reduce well-being at work. The study draws on the job demands-resources (JD-R) model to examine whether managing the potential intensification resulting from the HPHRP system is crucial to ensuring mutually-beneficial gains (Boxall & Macky, 2009). The study posits that employees' well-being may be attributed to the way an organisation implements HPHRP and the availability of job resources in the workplace.

The JD-R model proposes that the job demands-resources imbalance results in impaired health and well-being (Bakker & Demerouti, 2007). Specifically, the buffer hypothesis specifies that employee well-being is contingent upon balancing JD and job resources (Tadić et al., 2015; Bakker et al., 2007). Nevertheless, the empirical support for the JD-R model's buffer hypothesis has been sparse. Several studies have failed to detect the interaction effect between JD and control (e.g., Gonzalez-Mulé et al., 2021; Häusser et al., 2010; Van der Doef & Maes, 1999). This is also true for most well-being studies which have reported both nonsignificant (e.g., Bakker et al., 2004) and significant impact of several job resources on JD and exhaustion (Bakker et al., 2003a, 2003b) as well as mixed findings of the moderating effects of job control and teamwork on employees' intrinsic job satisfaction and psychological well-being (Zou et al., 2022). Despite the controversy, the JD-R model continues to be highly influential in the HRM literature. Scholars have used it as an explanatory framework to elucidate how HPHRP can promote positive employee outcomes to achieve mutual gains (e.g., Ogbonnaya, 2019). In line with the JD-R model, this study argues that HPHRP will induce employees' work-related demands, thereby deteriorating their perceived well-being. Moreover, this detrimental effect will be contingent upon the perceived level of managerial support (MS). Notably, resources which can help employees to fulfil their work-related needs are varied and can exist at various levels, such as the organisational level (e.g., MS), the level of peers (e.g., coworker support), the job level (e.g., role clarity) and the task level (e.g., job autonomy) (Bakker et al., 2004). The focus in this study is on MS because the support gained from experienced superiors has been found to be particularly helpful in dealing with work-related issues (Beehr et al., 1990) and alleviating the impact of work demands on strain (Van der Doef & Maes, 1999). Accordingly, we argue that MS is potentially crucial in the HPHRP-job demands-well-being link.

Similar to other studies based on the Workplace Employment Relations Survey (WERS), managerial ratings of the implemented HPHRP (i.e., actual HPHRP, see Nishii & Wright, 2008) are used in the study. Senior HR executives are considered to be the best placed, and largely the only ones qualified, to provide HR practice information across several jobs (Huselid & Becker, 2000). This is because employees may not be clear on the full spectrum of the organisation's HR practices (Toh et al., 2008), especially about those ones that do not pertain to them personally (Boon et al., 2019). In terms of well-being, in line with prior research focusing on employees' mental

health (Grant et al., 2007; Topcic et al., 2015), this study focuses on work-related anxiety and depression which are two distinct emotional states representing individuals' ill-health and are important indicators of affective well-being at work (Grant et al., 2007; Warr, 1990). According to Freud (1936), anxiety comprises feelings of apprehension, tension, nervousness, and worry, accompanied by physiological arousal. In the context of work, anxiety refers to tensions or worries an individual faces due to their job requirements. On the other hand, job-related depression refers to feelings of irrelevance and loss of interest that individuals face in relation to fulfilment of their job requirements (Holman & Wall, 2002). As feelings of anxiety and depression represent psychological ill-health, these are seen to impede individuals' social integration, productivity, participation at work, and promote turnover intentions (Jensen et al., 2013; Linden & Muschalla, 2007). From a psychological perspective, both anxiety and depression must be abated.

The present study contributes to the existing HPHRP-well-being research in several ways. First, it extends and refines the existing theoretical understanding of the underlying mechanisms between implemented HPHRP and employees' work-related well-being empirically. This is in line with the calls to discern the mediating mechanisms influencing employee well-being in the high-performance paradigm (Guest, 2017; Luu, 2020). Second, it links the HPHRP literature with work psychology models. In doing so, the study adds to the research stream on the HPHRP-employee well-being linkage by extending insights into boundary conditions for this relationship. Specifically, the study progresses the HPHRP-well-being research by analysing the buffering role of MS against HPHRP-induced JD. This is valuable as previous studies have predominantly assessed the moderating role of MS in the context of perceived psychological resources (e.g., see Butts et al. (2009)) and not as a buffer against excessive demands at work. Accordingly, the study corroborates the value of organisational resources for employees' work-related well-being, specifically in performance-driven workplaces. Further, it responds to calls for investigating the highly discounted effects of HPHRP on employee outcomes (Liao et al., 2009; Nishii et al., 2008; Takeuchi et al., 2007). Lastly, the study adds to the rather limited empirical evidence that provides support for the buffer hypothesis (Van der Doef & Maes, 1999).

2 | THEORETICAL BACKGROUND AND HYPOTHESES DEVELOPMENT

2.1 | High-performance HR practices and well-being

There is some consensus that HPHRP are designed to ensure employee ability, motivation and opportunity to contribute (AMO) (Appelbaum et al., 2000; Boxall & Purcell, 2003). However, this perspective on what may constitute HPHRP does not go unchallenged, and an alternative approach to conceptualising these practices is advocated by some scholars (e.g., Guest & Conway, 2007). It is

argued that the AMO approach provides a minimal guideline to the outcomes that these HR practices are designed to ensure in a high-performance framework. Considering the commitment-oriented view of HPHRP, a key to employee contribution is the involvement and commitment of employees. To accommodate this perspective, a fourth category of HR practices focussing on enhancing employee commitment should be incorporated. Accordingly, following Guest and Conway (2007), we include practices based on the ability-motivation-opportunity-commitment model in this study.

The mainstream approach suggests that HPHRP promote positive employee outcomes, such as job satisfaction, commitment and psychological health (Van De Voorde et al., 2012). High-performance HR practices are considered to be indicative of an organisation's ideology and transmit signals about the organisation's care and support for their employees. When employees perceive that their organisation values them, their sense of well-being increases. However, critical scholars portray more conflict-generating outcomes of HPHRP for employees, specifically for their work-related well-being, proposing a dark side to HPHRP (Peccei et al., 2013). This perspective is typically grounded in the labour process theory, which at its core is associated with the issues of deskilling and managerial control (Braverman, 1974). The labour process theory highlights a systemic trend towards the intensification of the work process whereby management is seen to make employees work harder and/or longer as a means to maximise labour input (Ramsay et al., 2000). In contemporary work organisations, this approach characterises the strongly conflicting nature of interests between employees and employers, which bring about trade-offs in the outcomes of the innovative work processes, such as HPHRP. In effect, HPHRP are categorised as insidious managerial control ploy, which are seen to introduce more task discretion, but at the expense of additional responsibilities, higher pressure to perform and less control over the work processes. Put differently, HPHRP are likely to bring positive changes to employees' career advancement, job autonomy and other necessary work skills in lieu of extra demands on their time and scope of work (Harley, 1995). Since heightened work demands characterise job stressors (see Mauno et al., 2022 for a review), a paradoxical situation emerges for employees. They may experience satisfaction and commitment from HPHRP but also feel job fatigue, anxiety and depression. Increased job involvement itself is deemed to increase role conflict, which induces job stress (Danford et al., 2008; Örtqvist & Wincent, 2006). Findlay et al. (2000) have associated employee discretion practices with work intensification, consequently yielding potentially negative effects for employee well-being. Similarly, Kroon et al. (2009) show a positive relationship between HPHRP and work intensification, which is seen to lead to worker burnout. Heffernan and Dundon (2012) and Jensen et al. (2013) also show a strong positive relationship between HPHRP and work intensification and anxiety.

These conflicting findings suggest the need for a more nuanced and theoretically motivated enquiry, particularly in terms of the stress-enhancing potential of HPHRP. Empirical analysis of the association between HPHRP and stress is still in its infancy, and there is a dearth of sufficient understanding of "why" and "when" HPHRP

relate to feelings of impaired well-being in the workplace (Jensen et al., 2013; Topcic et al., 2015). The integration of the JD-R model with the labour process perspective provides an explanatory framework to discern how to manage the well-being of a workforce that is exposed to high work demands. As noted previously, the conceptual foundation of the JD-R model elucidates how the dysfunctional work demands in the work environment may be neutralised. It focuses on workplace factors (i.e., job resources) that offset the potentially negative impact of workplace stressors (i.e., JD) into positive employee well-being. The tenets of the JD-R model posit that availability of job resources will promote well-being or—when lacking—decrease well-being. The following sections discuss the mediating and moderating links that underpin the association between implemented HPHRP and work-related anxiety and depression as two dimension of mental health-related well-being.

2.2 | The mediating role of job demands in the relationship between high-performance HR practices and employee well-being

Job demands can be described as 'any physical, psychological, organisational or social elements/conditions of the job that require continuous mental, psychological and/or physical effort (cognitive and emotional) in order to fulfil the requirements of work (Bakker et al., 2004). In line with the research that suggests that HPHRP make work more intense and demanding (Jensen et al., 2013; Kroon et al., 2009; Ramsay et al., 2000), which, in turn, compromises well-being, this study argues that JD will have a substantial role in the association between HPHRP and employees' job-related anxiety and depression. Studies suggest that since high-performance work regimes are implemented to enhance organisational performance, employers enact HPHRP to elicit great effort from employees due to which work load and pressures rise (Guest, 2007). However, a closer examination of the studies linking HPHRP-job demands highlight two potential issues which call for further examination of the intensification thesis. First, a majority of the studies examine the impact of HPHRP as a coherent set of practices on work demands, which overlooks the possibility that different types of HPHRP may affect perceived work demands heterogeneously (Edgar et al., 2015). Second, work demands have been measured differently in the existing studies. For instance, Kalmi and Kauhanen (2008) study job intensity as a measure of JD, while Kroon et al. (2009) examine employee burnout as a measure of work intensification. De Joy et al. (2010) show a significant positive relationship between HRM factors and workload, physical work demands and unpredictable work schedules. Macky and Boxall (2008) examine weekly hours worked, time demands and overload. Kaya et al. (2010) measure workload pressures/intensity as employee perceptions of working with time constraints and having sufficient time available to deal with workload. Jensen et al. (2013) measure the perceptions of work overload amongst employees. Similarly, Hefernan and Dundon (2012) and the studies based on the WERS 2004 and 1998 measure workloads similarly as perceived job-related

demands and time constraints to fulfil these (Guest, 1999; Ogbonnaya et al., 2013). Regardless of the observed conceptual and operational differences, the studies establish a positive association between HPHRP and work demands (Mauno et al., 2022). Furthermore, many studies have suggested a link between work intensification regarded as JD characteristics and negative employee outcomes, such as stress and anxiety (Gröpel & Kuhl, 2009; Humphrey et al., 2007).

Excessive JD and pressure are believed to have certain physiological and psychological costs. The occupational stress literature highlights that JD are significant psychological stressors in the workplace (Mauno et al., 2022; Newton & Jimmieson, 2008), which have negative effects on employee well-being, withdrawal behaviours, and other productivity-related consequences. For example, a vast amount of existing research has shown that work environments or other aspects of employment may create work-to-home conflict, fatigue, anxiety, job dissatisfaction or other adverse psycho-physiological consequences (Demerouti et al., 2001; White et al., 2003). According to the JD-R model, highly demanding aspects of work lead to persistent over-taxing, which ultimately causes negative outcomes such as stress and exhaustion (Demerouti et al., 2001). Brown and Benson (2005) have noted that individuals who feel that they are being over-worked or face long working hours, are more likely to report lower physical and psychological well-being. Thus, it may be inferred that the excessive JD and pressures associated with HPHRP are predictive of reduced well-being, thereby inducing job-related anxiety and depression. Accordingly, the following mediating link is hypothesised:

Hypothesis 1 Job demands will mediate the positive relationship between HPHRP and employees' individually perceived job-related anxiety and depression.

2.3 | The moderating role of managerial support in the relationship between high-performance HR practices, job demands and employee well-being

According to Kottke and Sharafinski (1988), MS, also referred to as supervisor support, is 'an employee's perception of the support offered by an immediate supervisor in terms of concern for his/her general welfare, and work-related interests' (cited in McCarthy et al. (2013), p. 1259). It includes factors relating to perceptions of trust in management and management's concern for employees and their development. Managerial support represents an important job resource which, typically, signify any physical, organisational, psychological or social conditions at the workplace which aid an individual in meeting the requirements of their job (Bakker & Demerouti, 2007; Demerouti et al., 2001).

In line with the JD-R model, MS is considered a salient job resource because it assures employees that they can count on their managers for help 'when it is needed to carry out one's job effectively, and to deal with stressful situations' (Rhoades & Eisenberger, 2002, p. 698). Perceived MS has substantial implications for

employee well-being, especially in stressful work environments. Previous studies have demonstrated that supportive and healthy inter-personal interactions make work more satisfying for workers (Ryan & Deci, 2001). Employees who enjoy good working relations with their supervisors and/or colleagues feel resourceful and cope better with the work (Humphrey et al., 2007; Johnson & Hall, 1988; Van der Doef & Maes, 1999). Accordingly, they are more likely to exert operational control to deal with the job requirements and make the required adjustments (Bakker & Demerouti, 2007).

The significance of good managerial relations at the workplace is substantial for any work environment. However, the value of such initiatives may be even more important in workplaces that thrive on employee commitment to achieve performance. Healthy managerial relations as an indicator of MS help reduce perceived work-overload and job strain, and other negative employee attitudes. Having poor social support in the workplace, especially in high-strain (i.e. high-performance) workplaces, translates into work intensification, exhaustion and stress at work. This is because individuals remain incapable of dealing with the burdens of work. Long working-hours and a persistent lack of support are seen to impair well-being. Cohen and Wills (1985) theorise that the absence of social support in times of acute stress stimulates negative psychological states such as anxiety, helplessness and depression.

Overall, the empirical evidence on the interactive effects of MS suggests a negative association between MS and individual stress outcomes, such that individuals with low levels of MS obtain higher stress outcomes and reduced well-being, and vice versa. In the context of the performance-driven work environments, these notions suggest that employees are likely to have different responses to demands at work, depending on whether they regard their situational factors as enabling or disabling. If employees believe that they have good MS, that their managers have a high regard for their abilities and their intentions can be trusted, they are more likely to adjust to demands at work without experiencing higher stress at work, thereby not compromising their well-being. Accordingly, considering differences in MS within workplaces this study postulates that:

Hypothesis 2 The positive relationship between job demands and employees' individually perceived job-related anxiety and depression will be moderated by managerial support, such that higher levels of managerial support will buffer the negative effects of perceived job demands on anxiety and depression.

Combining the preceding hypotheses, the study further investigates a moderated mediation model, which is presented in Figure 1. In line with both the mediating mechanism of JD and the moderating role of the extent of MS in the association between JD and both anxiety and depression, it is logical to further predict that the indirect effects of HPHRP on anxiety and depression through JD are conditional on the extent of MS in the workplace. Accordingly, it is hypothesised that:

Hypothesis 3 Job demands will mediate the positive relationship between HPHRP and the interaction between job demands and managerial support on employees' individually perceived anxiety and depression.

3 | DATA AND METHODS

3.1 | Sample

This study uses multisource data from the WERS 2011. Workplace Employment Relations Survey series has mapped the British employment relations extensively for over 3 decades. The first WERS was conducted in 1980 and thereafter intermittently in 1984, 1990, 1998, 2004 and 2011. Workplace Employment Relations Survey 2011 was conducted from March 2011 to June 2012. The overall population represented by the WERS 2011 consists of 750,000 workplaces that employ approximately 23.3 million employees. This accounts for 35% of workplaces and 90% of all employees in Britain (van Wanrooy et al., 2013). The information on the implemented HPHRP is collected from the management at the

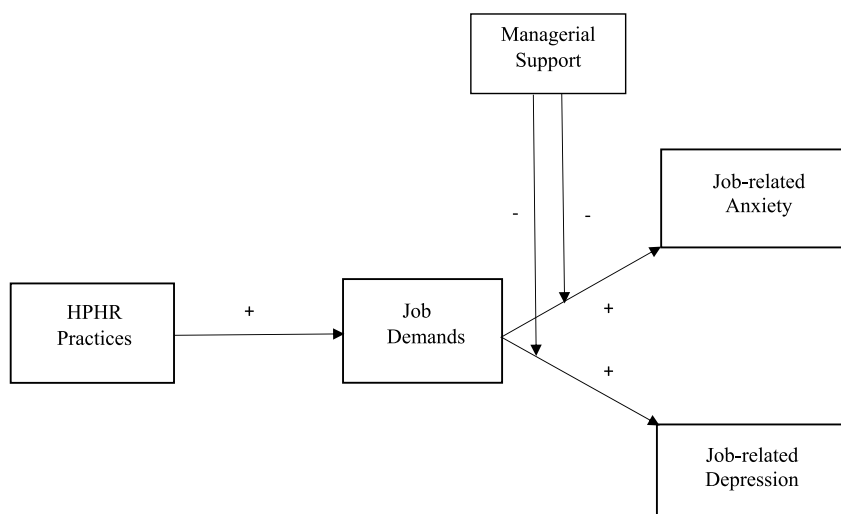


FIGURE 1 Proposed conceptual model.

workplace level while data on JD, MS and well-being is gathered from employees in the respective workplaces. The use of linked employer-employee data serves to improve the paucity of cross-level testing of the employee-level influences of HPHRP and helps minimise single source bias in the study (Podsakoff et al., 2012). At the workplace level, the HPHRP data is collected at a single point in time via face-to-face interviews with a senior person responsible for the HR function. In some cases, this person was a HR specialist. In others, s/he was a general manager or a person with a different functional specialty who had substantial HR responsibilities. Management interviews generated a cross-sectionally representative sample of 2680 workplaces with a response rate of 46.5%. The sample was taken from the Inter-Departmental Business Register, maintained by the Office for National Statistics. It is representative of all British workplaces with five or more employees, and covers both private and public sector organisations and all industries except for agriculture, forestry, mining and quarrying. As noted previously, managerial ratings of the implemented HPHRP (i.e., actual HR practices, see Nishii & Wright, 2008) are used, rather than perceived HPHRP, to capture the full spectrum of HPHRP at the workplace. At the employee-level, the data is collected via a survey of employees at a single point in time in those workplaces which participated in the management survey. Permission was sought from the manager to distribute self-complete questionnaires to a maximum of 25 randomly selected employees in each of these workplaces. A total of 21,981 employees participated in the survey, which represented a response rate of 54.3%. The final sample consists of workplace-level data matched to the employee data in the respective workplaces, thereby reducing workplace-level data from 2680 to 1923 cases to accommodate information from workplaces that participated in the survey of employees.

Of the respondents, more than half (56%) were female, and 69% were married. Almost 30% had been working at their workplace for 10 years or more. Almost 4% of respondents were aged between 16 and 21 years, 14% between 22 and 29, 21% were between 30 and 39, 28% between 40 and 49 and the remainder 32% were 50 years or above. Furthermore, 92% of the sample had permanent contracts, 32% were working in supervisory roles and 26% had dependent children of any age. Almost of 31% of the respondents held academic, vocational or professional degrees. In the workplace sample, 38% of the workplaces were in the public sector and on average had been in operation for 44 years (SD = 52.98). The majority of the workplaces did not recognise trade unions or staff associations (99%).

3.2 | Measures

3.2.1 | High-performance HR practices

Following Guest and Conway (2007), senior/HR managers' responses to 20 implemented HR practices reflecting the high-performance approach and aimed at promoting employees' abilities, motivation,

opportunity to participate and commitment to the organisation were used in the study. Despite a lack of consensus regarding the practices which constitute HPHRP, some consensus has emerged that the HR practices chosen in this study represent HPHRP (Combs et al., 2006; Guest et al., 2004; Huselid, 1995; Ichniowski et al., 1997). A total of 87 items covering the 20 HR practices were divided into a skills and ability-enhancing bundle (standard induction, recruitment and selection procedures, and formal training process), a motivation-enhancing bundle (performance appraisal schemes, performance-related pay schemes, profit-related pay schemes, and employee share-ownership schemes), an opportunity-enhancing bundle (communication systems, consultation mechanisms, team-work practices, job design schemes, information sharing mechanisms, attitudes surveys, and quality circles) and a commitment-enhancing bundle (equal opportunity schemes, grievance procedures, fringe benefits, job security provisions, flexible working practices and family care options).¹

All HR practices were measured on a binary scale except for the measures of job design, designated teams, off-the-job training, functional flexibility, performance appraisal, performance-related pay, profit-related pay, and employee share-ownership schemes, which are measured by multiple response items. In line with previous WERS studies (Guest & Conway, 2007; Wood & de Menezes, 2011), the items with multiple response scales were re-coded into binary scale items (mostly at median split) to avoid any biases arising from non-normality and to maintain consistency. The use of binary variables for HPHRP is not uncommon (e.g., see Bryson & White, 2008; Toh et al., 2008; Wood & de Menezes, 2011). Dichotomising measures results in the loss of information, which limits the statistical power of data to establish associations between variables. It also increases the risk of underestimating the extent of variation in outcomes between dichotomised groups (Altman & Royston, 2006). To minimise such risks, a cut point at sample median used in previous studies was adopted (e.g., Wood & de Menezes, 2008). An overall indicator of HPHRP index reflecting the mean score of the total number of HR practices grouped across the four bundles is used in the analysis, which is in line with common practice (e.g., Guest & Conway, 2011).

3.2.2 | Job demands

Job demands is measured using employee perceptions on a two-item five-point scale ranging from 'strongly disagree' to 'strongly agree'. An example item is, 'My job requires that I work very hard'. The items are adapted from Karasek and Theorell's (1990) measures of psychological JD in their job content questionnaire and reflect the two core elements of JD, namely workload and time demands. Cronbach's alpha for this scale is 0.557.²

3.2.3 | Managerial support

Managerial support is a five-item measure, which is based on questions that explore the extent of management's behavioural integrity,

consistency, and demonstration of concern for employee needs. An example item is, 'Managers understand about employees having to meet responsibilities outside work'. This construct is built around some of the measures of Whitener et al.'s (1998) trustworthy behaviours (Guest et al., 2007), and has been used to reflect management support in previous WERS studies (e.g., Wood & De Menezes, 2011; Wood et al., 2020). Employee responses were measured on a five-point scale ranging from 'strongly disagree' to 'strongly agree.' Cronbach's alpha for this scale is 0.915.

3.2.4 | Job-related anxiety

Job-related anxiety is measured using three items from Warr's (1990) anxiety-contentment scale which explores perception of employees on how much of the time has their job made them feel: *tense, worried and uneasy*. It is measured using employee responses on a five-point scale ranging from 'never' to 'all of the time'. Cronbach's alpha for this measure is 0.844.

3.2.5 | Job-related depression

Job-related depression is measured using three items from Warr's (1990) depression-enthusiasm scale which explores perception of employees on how much of the time has their job made them feel: *depressed, gloomy and miserable*. It is measured on a five-point scale ranging from 'never' to 'all of the time'. Cronbach's alpha for this measure is 0.904.

3.2.6 | Control variables

The analysis controlled for multiple workplace characteristics commonly included in previous studies due to their potential association with both the adoption of certain HPHRP and their employee-related outcomes (Guest et al., 2004; Jensen et al., 2013; Takeuchi et al., 2007; Wood et al., 2012). These included: (i) employment size of the workplace (the logarithm of the total number of employees in the workplace); (ii) trade union recognition (trade unions recognised at the workplace = 1); (iii) age of establishment (the number of years that the workplace has been in operation) and (iv) a binary indicator of whether the workplace belongs to the public or private sector, regardless of its industrial group (public = 1). Additionally, the study included various employee-level controls, such as: (a) gender (male = 1); (b) marital status (married = 1); (c) dependent children (pre-school age, school age, and both pre- and school age children = 1); (d) employment status (permanent job = 1); (e) job position (manager = 1); and (f) age. The selection of these variables is in line with previous research (Wood & de Menezes, 2011; Wood et al., 2012) and allowed to account for the potential association of individual demographic differences on JD and well-being.

3.3 | Validation of measures and examination of single source bias within the employee-level data

To ensure that the scales represented their respective underlying constructs, we ran a confirmatory factor analysis using Mplus 8.5. Four-latent factors representing JD, MS, anxiety and depression, were included in this model. All factors were allowed to correlate. This model fitted the data well ($\chi^2(59) = 6342.403$, $p < 0.001$; root mean square error of approximation = 0.070; comparative fit index = 0.991; Tucker-Lewis index = 0.988).

Additionally, the square root of the average variance extracted (AVE) of all constructs was calculated and compared with their respective correlations to establish the discriminant validity of the measures (Fornell & Larcker, 1981). The results established that for the majority of constructs, the square root of the AVE was higher than the corresponding inter-construct correlation estimate (0.608 for JD, 0.760 for MS, 0.725 for anxiety and 0.837 for depression). This confirms that the constructs are conceptually distinct from each other. Furthermore, as shown in Table 1, the correlations between the study's variables do not exceed the critical values of 0.7 (Tabachnick & Fidell, 2001). Nevertheless, as expected, both anxiety and depression as measures of negative mental health are highly correlated ($r = 0.87$, $p < 0.001$). Overall, multicollinearity does not seem to be an issue in the data.

In order to statistically examine the potential for common method bias for the measures of JD, MS and anxiety and depression which were taken from a single source (i.e., Employee Questionnaire), Podsakoff et al.'s (2012) common factor approach was used. This involved estimating a measurement model in which each indicator is allowed to load on its theoretical construct and a common factor. In this model, the variance extracted by the common factor was 0.45, which is below the 0.50 criterion that Fornell and Larcker (1981) associated with a meaningful construct. This suggests that common method bias is not a concern in this study.

3.4 | Analytic strategy

As employees were nested in workplaces, data at the employee level are not independent and exhibit a two-level nested structure. Accordingly, generalised multilevel structural equation modelling (GMSEM) in STATA was used. The intra-class correlation coefficients were calculated for employee-level measures to validate the use of GMSEM. The ICC1 values for JD (0.090), anxiety (0.072) and depression (0.078) were reasonably high, inferring that 9%, 7% and 8%, of the variation in JD, anxiety and depression, respectively, is attributable to workplace-level membership. This supports the proposition that perceptions of JD, anxiety and depression of individuals in the same workplace is different compared with those working in other workplaces. The reliability of between-workplace comparison was determined using the ICC2 coefficient. The ICC2 coefficient for JD (0.530), anxiety (0.463) and depression (0.489) are also adequate according to the thresholds proposed by Kline (2011).

TABLE 1 Descriptive statistics and correlations for all study variables.

| | Mean | SD | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 |
|----------------------------|-------|-------|-----------|-----------|----------|-----------|----------|----------|-----------|----------|-----------|-----------|----------|-----------|---------------|---------------|-----------|---------------|---------------|
| 1. Gender | 0.44 | 0.50 | - | | | | | | | | | | | | | | | | |
| 2. Age | 3.80 | 1.33 | 0.046*** | - | | | | | | | | | | | | | | | |
| 3. Marital status | 0.70 | 0.46 | 0.071*** | 0.308*** | - | | | | | | | | | | | | | | |
| 4. Job status | 0.93 | 0.26 | 0.043** | 0.192*** | 0.168*** | - | | | | | | | | | | | | | |
| 5. Dependent children | 0.27 | 0.45 | 0.013 | -0.111*** | 0.358*** | 0.070*** | - | | | | | | | | | | | | |
| 6. Job position | 0.33 | 0.47 | 0.108*** | 0.080*** | 0.154*** | 0.214*** | 0.082*** | - | | | | | | | | | | | |
| 7. Tenure | 3.53 | 1.32 | 0.042*** | 0.444*** | 0.205*** | 0.467*** | 0.025* | 0.185*** | - | | | | | | | | | | |
| 8. Education | 0.32 | 0.47 | 0.046*** | -0.130*** | 0.063*** | -0.090*** | 0.036** | 0.266*** | -0.126*** | - | | | | | | | | | |
| 9. TU recognition | 0.01 | 0.10 | -0.024 | 0.076** | -0.002 | 0.064 | -0.098** | 0.012 | -0.046! | -0.091* | - | | | | | | | | |
| 10. Public | 0.38 | 0.49 | -0.236*** | 0.142*** | 0.104*** | 0.044* | 0.120*** | -0.018 | 0.164*** | 0.095** | 0.097* | - | | | | | | | |
| 11. Age of establishment | 43.83 | 52.99 | -0.009 | 0.066*** | 0.074*** | -0.033** | 0.022* | 0.009 | 0.100*** | 0.089*** | 0.007 | 0.155*** | - | | | | | | |
| 12. Log Total employees | 2.07 | 0.69 | 0.094*** | 0.051*** | 0.055*** | 0.023! | 0.025** | -0.011 | 0.138*** | 0.154*** | -0.337*** | 0.219*** | 0.194*** | - | | | | | |
| 13. HPHR | 10.46 | 3.05 | -0.014! | 0.021** | 0.059*** | 0.010 | 0.019* | 0.030** | 0.066*** | 0.242*** | -0.040 | 0.283*** | 0.051*** | 0.530*** | - | | | | |
| 14. Job demands | 3.73 | 0.79 | -0.143*** | 0.044*** | 0.110*** | 0.189*** | 0.119*** | 0.343*** | 0.112*** | 0.202*** | 0.062* | 0.193*** | 0.048*** | 0.073*** | 0.608 (0.734) | - | | | |
| 15. Managerial support | 3.34 | 0.90 | -0.118*** | -0.053*** | -0.022* | -0.170*** | -0.005 | 0.103*** | -0.171*** | 0.083*** | 0.046* | -0.084*** | -0.025** | -0.161*** | -0.071*** | 0.760 (0.940) | - | | |
| 16. Job-related anxiety | 2.24 | 0.91 | 0.019* | -0.010 | 0.040*** | 0.127*** | 0.025* | 0.162*** | 0.084*** | 0.156*** | -0.009 | 0.098*** | 0.010 | 0.072*** | 0.082*** | 0.551*** | -0.408*** | 0.725 (0.887) | |
| 17. Job-related depression | 1.82 | 0.95 | 0.098*** | -0.051*** | -0.022* | 0.150*** | -0.002 | 0.022* | 0.112*** | 0.008 | -0.008 | 0.058*** | -0.004 | 0.063*** | 0.031*** | 0.335*** | -0.540*** | 0.873*** | 0.837 (0.939) |

Note: The first entry on the diagonal is the average variance extracted square root (AVE) and the second entry (in parentheses) is the composite reliability (CR) score.

Abbreviations: HPHR, high-performance HR; TU, trade union.

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$; ! $p < 0.10$.

Therefore, the proposed hypotheses were tested using GMSEM with STATA. All relationships were evaluated simultaneously. In the model, the mediator variable, perceived JD, was regressed on the HPHRP index. The outcome variables (i.e., perceived anxiety and depression) were regressed on the control variables, HPHRP index, JD, MS, and the interaction term of JD and MS ($JD \times MS$) (Hayes, 2013). All variables were grand-mean-centred (Hofmann et al., 2000). The model was tested using maximum likelihood (MLE) estimation method with robust standard errors (Braun & Nieberle, 2017). Maximum likelihood is preferred because it is proven to be robust against violation of normality assumptions (Iacobucci, 2010).

4 | RESULTS

4.1 | Structural model and hypothesis testing

Table 2 displays the results of the study's hypotheses. The results revealed that HPHRP have a weak but significant positive association with JD ($\beta = 0.019, p < 0.001$), which suggests that HPHRP stimulate feelings of work intensification. Job demands had a moderate positive association with anxiety ($\beta = 0.361, p < 0.001$) and a significant, but weak, positive association with depression ($\beta = 0.227, p < 0.001$). Moreover, the indirect effect of HPHRP on employee well-being via JD was significant and positive for both anxiety ($\beta = 0.007, p < 0.001$, 95% confidence interval (CI) 0.005–0.008) and depression ($\beta = 0.004, p < 0.001$, 95% CI 0.003–0.005), although the size of the mediation effects were small. Together, these results indicate that JD act as a mediator between HPHRP and employee well-being, in support of Hypothesis 1. The direct path from HPHRP to anxiety is significant, but weakly, positive ($\beta = 0.002, p < 0.001$) but from HPHRP to depression it is negative albeit nonsignificant ($\beta = -0.001, p = 0.824$).

This suggests that JD partially mediate the relationship between HPHRP and anxiety but fully mediate the relationship between HPHRP and depression.

Hypothesis 2 posited the buffering influence of perceived MS. The interaction between JD and MS on both anxiety ($\beta = -0.024, p < 0.001$) and depression ($\beta = -0.027, p < 0.001$) was significant even though weakly negative, providing support for Hypothesis 2. To better understand the interaction pattern, interaction plots at one standard deviation below and above the mean for MS on the JD-anxiety and JD-depression relationships was estimated (Aiken & West, 1991) and are presented in Figures 2 and 3, respectively. The positive relationship between JD and anxiety ($\beta = 0.383, SE = 0.010, z = 36.80, p < 0.001$) and JD and depression ($\beta = 0.250, SE = 0.010, z = 23.19, p < 0.001$) was significant when MS was low. Nevertheless, these associations were significantly less positive for both anxiety ($\beta = 0.339, SE = 0.010, z = 31.09, p < 0.001$) and depression ($\beta = 0.202, SE = 0.011, z = 17.83, p < 0.001$) when MS was high. Regardless of the small moderation coefficients in our sample, overall the results highlight that the positive relationship between JD and both anxiety and depression becomes weaker when organisations display high MS compared to low MS.

Hypothesis 3 predicted that the indirect effect of HPHRP on job-related anxiety and depression via JD will be contingent on the extent of MS. Consequently, differences in the mediation effects of JD at high, medium and low levels of MS on anxiety and depression were calculated and are presented in Table 3. Consistent with our expectations, for employees who enjoy high MS, results revealed a lower (albeit positive) conditional indirect effect for anxiety and depression. Although the respective effect sizes remained low, the results of our analysis support partial mediation of JD on the relationship between HPHRP and the interaction of JD and MS on anxiety and full mediation of JD on the relationship between HPHRP and the interaction of JD and MS on depression, confirming Hypothesis 3.

TABLE 2 Multilevel path analysis.

| Relationships | β | *SE | z-value | LL 95% CI | UL 95% CI |
|---|-----------|-------|---------|-----------|-----------|
| HPHRP index → Job demands | 0.019*** | 0.002 | 7.46 | 0.014 | 0.024 |
| Job demands → Anxiety | 0.361*** | 0.008 | 43.79 | 0.345 | 0.377 |
| Managerial support → Anxiety | -0.342*** | 0.006 | -52.71 | -0.355 | -0.329 |
| Job demands × Managerial support → Anxiety | -0.024*** | 0.007 | -3.23 | -0.038 | -0.009 |
| Job demands → Depression | 0.227*** | 0.008 | 26.41 | 0.209 | 0.243 |
| Managerial support → Depression | -0.481*** | 0.007 | -71.40 | -0.494 | -0.468 |
| Job demands × Managerial support → Depression | -0.027*** | 0.008 | -3.46 | -0.042 | -0.011 |
| HPHRP index → Anxiety | 0.002*** | 0.002 | 3.37 | 0.003 | 0.012 |
| HPHRP index → Depression | -0.001 | 0.002 | -0.22 | -0.005 | 0.004 |
| HPHRP → Job demands → Anxiety | 0.007*** | 0.000 | 7.35 | 0.005 | 0.008 |
| HPHRP → Job demands → Depression | 0.004*** | 0.000 | 7.17 | 0.003 | 0.005 |

Abbreviations: CI, Confidence interval; HPHRP, high-performance HR practices; LL, Lower limit; UL, Upper limit.

*** $p < 0.001$.

FIGURE 2 Moderation effects of Managerial support (MS) \times Job demands (JD) on anxiety.

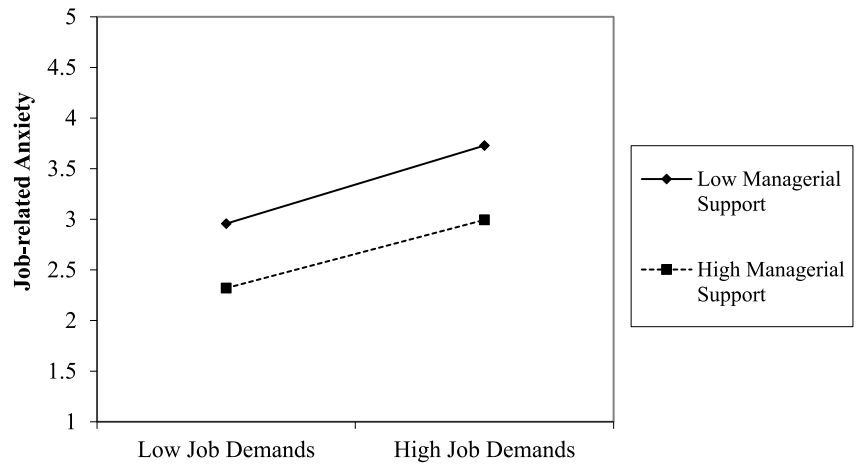


FIGURE 3 Moderation effects of Managerial support (MS) \times Job demands (JD) on depression.

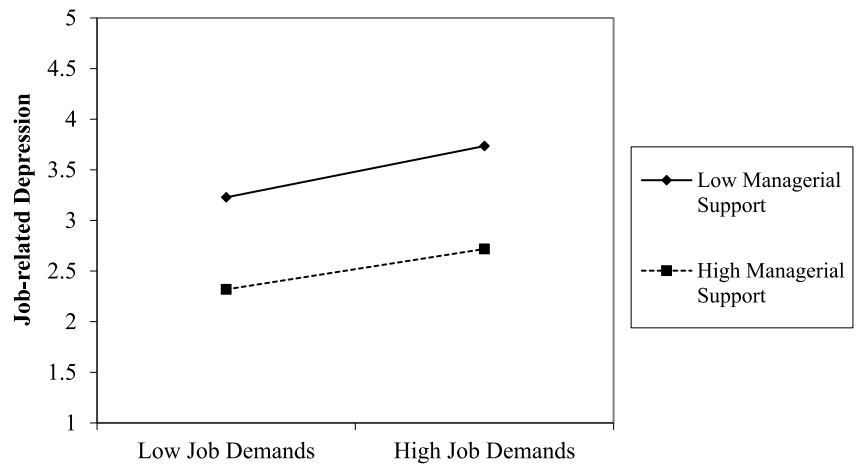


TABLE 3 Moderated-mediation results.

| Path | Total effect | SE | z-value | LL 95% CI | UL 95% CI |
|--|--------------|-------|---------|--------------|--------------|
| HPHRP index \rightarrow JD \rightarrow JD \times MS \rightarrow Anxiety | | | | | |
| Managerial support low | 0.007*** | 0.001 | 7.30 | 0.005 | 0.009 |
| Managerial support medium | 0.006*** | 0.009 | 7.35 | 0.005 | 0.008 |
| Managerial support high | 0.005*** | 0.000 | 7.25 | 0.004 | 0.008 |
| HPHRP index \rightarrow JD \rightarrow JD \times MS \rightarrow Depression | | | | | |
| Managerial support low | 0.005*** | 0.001 | 7.09 | 0.003 | 0.006 |
| Managerial support medium | 0.004*** | 0.006 | 7.17 | 0.003 | 0.005 |
| Managerial support high | 0.003*** | 0.005 | 6.85 | 0.002 | 0.005 |

Abbreviations: CI, Confidence interval; JD, Job demands; LL, Lower limit; MS, Managerial support; SE, Standard errors; UL, Upper limit.

*** $p < 0.001$.

4.2 | Additional analyses

We also analysed the differential effects of the four bundles of HPHRP on well-being in a moderated mediation analysis. These results are provided in Tables 4 and 5. Table 4 shows that the majority of HPHRP bundles had weak links to JD and anxiety. Specifically, the ability-

enhancing bundle has no significant relationship with JD ($\beta = 0.000$, $p = 0.965$), the motivation-enhancing bundle is negatively related to JD ($\beta = -0.013$, $p < 0.001$) while the opportunity-enhancing bundle ($\beta = 0.014$, $p < 0.001$) and the commitment-enhancing bundle ($\beta = 0.006$, $p < 0.001$) are positively related to JD. In turn, JD are moderately positively related to anxiety ($\beta = 0.360$, $p < 0.001$) and

TABLE 4 Multilevel Path Analysis based on ability-motivation-opportunity-commitment (AMOC) Framework.

| Relationships | β | *SE | z-value | LL 95% CI | UL 95% CI |
|---|-----------|-------|---------|-----------|-----------|
| Ability-enhancing bundle → Job demands | 0.000 | 0.004 | 0.04 | -0.007 | 0.007 |
| Motivation-enhancing bundle → Job demands | -0.013*** | 0.003 | -4.34 | -0.019 | -0.007 |
| Opportunity-enhancing bundle → Job demands | 0.014*** | 0.003 | 5.04 | 0.009 | 0.020 |
| Commitment-enhancing bundle → Job demands | 0.006*** | 0.001 | 5.17 | 0.004 | 0.008 |
| Job demands → Anxiety | 0.360*** | 0.009 | 41.21 | 0.342 | 0.377 |
| Managerial support → Anxiety | -0.342*** | 0.007 | -49.47 | -0.355 | -0.328 |
| Job demands × Managerial support → Anxiety | -0.025*** | 0.008 | -3.19 | -0.041 | -0.001 |
| Job demands → Depression | 0.228*** | 0.009 | 25.04 | 0.210 | 0.245 |
| Managerial support → Depression | -0.485*** | 0.007 | -67.71 | -0.499 | -0.470 |
| Job demands × Managerial support → Depression | -0.032*** | 0.008 | -3.88 | -0.048 | -0.015 |
| Ability-enhancing bundle → Anxiety | 0.006* | 0.003 | 2.15 | 0.000 | 0.012 |
| Motivation-enhancing bundle → Anxiety | 0.000 | 0.002 | 0.21 | -0.004 | 0.005 |
| Opportunity-enhancing bundle → Anxiety | -0.004* | 0.002 | -2.10 | -0.009 | -0.000 |
| Commitment-enhancing bundle → Anxiety | 0.004*** | 0.001 | 3.92 | 0.002 | 0.006 |
| Ability-enhancing bundle → Depression | 0.002 | 0.003 | 0.82 | -0.003 | 0.008 |
| Motivation-enhancing bundle → Depression | -0.002 | 0.003 | -0.68 | -0.007 | 0.003 |
| Opportunity-enhancing bundle → Depression | -0.003 | 0.002 | -1.39 | -0.007 | 0.001 |
| Commitment-enhancing bundle → Depression | -0.000 | 0.001 | -0.19 | -0.002 | 0.002 |
| Ability-enhancing bundle → Job demands → Anxiety | 0.000 | 0.001 | 0.965 | -0.003 | 0.003 |
| Motivation-enhancing bundle → Job demands → Anxiety | -0.005*** | 0.001 | -4.32 | -0.007 | -0.003 |
| Opportunity-enhancing bundle → Job demands → Anxiety | 0.005*** | 0.001 | 5.00 | 0.003 | 0.007 |
| Commitment-enhancing bundle → Job demands → Anxiety | 0.002*** | 0.000 | 5.13 | 0.001 | 0.003 |
| Ability-enhancing bundle → Job demands → Depression | 0.000 | 0.000 | 0.04 | -0.001 | 0.002 |
| Motivation-enhancing bundle → Job demands → Depression | -0.003*** | 0.001 | -4.28 | -0.004 | -0.002 |
| Opportunity-enhancing bundle → Job demands → Depression | 0.003*** | 0.003 | 4.94 | 0.002 | 0.005 |
| Commitment-enhancing bundle → Job demands → Depression | 0.001*** | 0.001 | 5.06 | 0.001 | 0.009 |

Abbreviations: CI, Confidence interval; LL, Lower limit; UL, Upper limit.

*** $p < 0.001$; * $p < 0.05$.

weakly to depression ($\beta = 0.228$, $p < 0.001$). The ability-enhancing ($\beta = 0.006$, $p < 0.05$) and commitment-enhancing bundles are related weakly, but significantly positively, to anxiety ($\beta = 0.004$, $p < 0.001$), while the opportunity-enhancing bundle had a weak negative association with anxiety ($\beta = -0.004$, $p < 0.05$). Accordingly, JD do not mediate the relationship between the ability-enhancing bundle and well-being. Job demands fully mediate a negative relationship between the motivation-enhancing bundle and both anxiety ($\beta = -0.005$, $p < 0.001$) and depression ($\beta = -0.003$, $p < 0.001$). Contrarily, JD partially mediate a positive relationship between the opportunity-enhancing bundle and anxiety ($\beta = 0.005$, $p < 0.001$) and fully mediate a positive relationship for depression ($\beta = 0.003$, $p < 0.001$). Likewise, JD partially mediate a weak positive relationship between the commitment-enhancing bundle and anxiety ($\beta = 0.002$, $p < 0.001$) and fully mediate a weak positive relationship between the

commitment-enhancing bundle and depression ($\beta = 0.001$, $p < 0.001$). The results also exhibit weak moderating effects of MS on JD for both anxiety ($\beta = -0.025$, $p < 0.001$) and depression ($\beta = -0.032$, $p < 0.001$). The associated moderated mediation results are provided in Table 5. These show weak negative moderated mediation relationships for the motivation-enhancing bundle, and weak positive moderated mediation associations for the opportunity-enhancing and commitment-enhancing bundles on well-being via JD.

5 | DISCUSSION

A major debate in the HPWS literature pertains to whether HPHRP promote or inhibit employee well-being. This study contributes to this debate through the development and testing of a moderated

TABLE 5 Moderated-Mediation Results based on ability-motivation-opportunity-commitment (AMOC) Framework.

| Path | Total effect | SE | z-value | LL 95% CI | UL 95% CI |
|--|--------------|-------|---------|-----------|-----------|
| Ability-enhancing bundle → JD → JD × MS → Anxiety | | | | | |
| Managerial support low | 0.000 | 0.001 | 0.04 | -0.003 | 0.003 |
| Managerial support medium | 0.000 | 0.001 | 0.04 | -0.003 | 0.003 |
| Managerial support high | 0.000 | 0.001 | 0.04 | -0.002 | 0.003 |
| Motivation-enhancing bundle → JD → JD × MS → anxiety | | | | | |
| Managerial support low | -0.005*** | 0.001 | -4.31 | -0.007 | -0.003 |
| Managerial support medium | -0.005*** | 0.001 | -4.32 | -0.007 | -0.003 |
| Managerial support high | -0.004*** | 0.001 | -4.30 | -0.007 | -0.002 |
| Opportunity-enhancing bundle → JD → JD × MS → Anxiety | | | | | |
| Managerial support low | 0.005*** | 0.001 | 4.99 | 0.003 | 0.008 |
| Managerial support medium | 0.005*** | 0.001 | 5.00 | 0.003 | 0.007 |
| Managerial support high | 0.005*** | 0.000 | 4.97 | 0.003 | 0.007 |
| Commitment-enhancing bundle → JD → JD × MS → Anxiety | | | | | |
| Managerial support low | 0.002*** | 0.000 | 5.11 | 0.001 | 0.003 |
| Managerial support medium | 0.002*** | 0.000 | 5.13 | 0.001 | 0.003 |
| Managerial support high | 0.002*** | 0.000 | 5.09 | 0.001 | 0.003 |
| Ability-enhancing bundle → JD → JD × MS → Depression | | | | | |
| Managerial support low | 0.000 | 0.001 | 0.04 | -0.001 | 0.002 |
| Managerial support medium | 0.000 | 0.001 | 0.04 | -0.002 | 0.001 |
| Managerial support high | 0.000 | 0.000 | 0.04 | -0.001 | 0.001 |
| Motivation-enhancing bundle → JD → JD × MS → Depression | | | | | |
| Managerial support low | -0.003*** | 0.001 | -4.26 | -0.005 | -0.002 |
| Managerial support medium | -0.003*** | 0.001 | -4.28 | -0.004 | -0.002 |
| Managerial support high | -0.003*** | 0.001 | -4.20 | -0.004 | -0.001 |
| Opportunity-enhancing bundle → JD → JD × MS → depression | | | | | |
| Managerial support low | 0.004*** | 0.001 | 4.92 | 0.002 | 0.005 |
| Managerial support medium | 0.003*** | 0.000 | 4.94 | 0.002 | 0.005 |
| Managerial support high | 0.003*** | 0.001 | 4.82 | 0.002 | 0.005 |
| Commitment-enhancing bundle → JD → JD × MS → Depression | | | | | |
| Managerial support low | 0.002*** | 0.000 | 5.03 | 0.001 | 0.002 |
| Managerial support medium | 0.001*** | 0.001 | 5.06 | 0.001 | 0.002 |
| Managerial support high | 0.001*** | 0.001 | 4.93 | 0.007 | 0.002 |

Abbreviations: CI, Confidence interval; JD, Job demands; LL, Lower limit; MS, Managerial support; UL, Upper limit.

mediation model, which extends the current understanding of the mechanisms and boundary conditions through which HPHRP may be related to employees' job-related anxiety and depression. The results of our empirical analysis show that implementing HPHRP tends to increase JD only marginally which, in turn, moderately increase job-related anxiety and depression. Moreover, our findings demonstrate that the extent to which employees perceive they have the support of their supervisor tends to marginally moderate this relationship, such that higher perceptions of MS tend to buffer the negative

relationship between JD and employees' work-related anxiety and depression.

5.1 | Theoretical implications

The present study has contributed to the HPHRP-well-being literature by emphasising the importance of providing workers with adequate MS to cope with HPHRP-induced work demands. The

effect sizes of the results remained rather low. This calls for a cautious interpretation of study's findings, specifically in relation to the HPHRP-job demands link and the moderation effects. Nevertheless, employee well-being is paramount for performance, economic outcomes, and survival of organisations (Boxall & Purcell, 2003). Therefore, even weak relationships between HPHRP, JD, MS and employees' work-related anxiety and depression have valuable implications. Considering our propositions were grounded in the conceptual developments and empirical research in occupational health psychology and well-being studies, this study has contributed to the literature in a number of ways.

First, it answered calls for more empirical research on mediating mechanisms linking HPHRP to employee well-being (Guest, 2017; Luu, 2020). In this regard, the finding of a mediated relationship between HPHRP and both anxiety and depression through JD aligns with the labour process view. It corroborates that HPHRP intensify the work process (i.e., promote feelings of heightened work and time demands) through shifting workplace responsibilities onto employees (Kalmi & Kauhanen, 2008; Sparham & Sung, 2007). Notable here is that the mediation process is different for anxiety and depression. In terms of anxiety, the mediation is partial suggesting that the enactment of HPHRP can make individuals feel tense, worried and uneasy. This is in line with the labour process perspective. High-performance HR practices increase employees' involvement by encouraging participation in multiple tasks. Enlarged jobs may make individuals more apprehensive and provoke constant feelings of heightened work demands and time pressure which, in turn, would lead to endured strain (Kroon et al., 2009; Ogbonnaya et al., 2017). Nevertheless, the mediation is full rather than partial for depression. This suggests that HPHRP do not impair employees' job-related depression per se (i.e., feelings of irrelevance and loss of interest concerning fulfilment of job requirements). Rather it is the perceived increase of work demands and pressure arising from HPHRP which reduce their sense of interest and worth of work. This infers that if employees are able to manage the demands of their jobs adequately, impairment of well-being would be less likely to occur. It is important to note that the association between HPHRP and JD was weak ($\beta = 0.019$). Thus, HPHRP is one of the antecedents of JD but not its only predictor. Prior research has shown that other factors such as structural work-related aspects, work pace and work complexity also increase employee perceptions of JD (Huo et al., 2022; Mauno et al., 2019). Future studies may explore other predictors and factors that could minimise JD in organisations more widely. Likewise, JD only partially mediated the relationship between HPHRP and anxiety, and the effect sizes of the mediated relationships remained weak ($\beta = 0.007$ for anxiety and $\beta = 0.004$ for depression). This suggests that there are other potential mediators of the explored relationships. Previous studies have investigated psychological and motivational mechanisms through which HPHRP relate to employee well-being. Other potential mechanisms, such as job design, job quality and structural issues in the workplace could be considered in future studies (Kowalski & Loretto, 2017).

Second, the finding on the moderating potential of MS is useful for our understanding of the boundary conditions of the HPHRP-employee well-being linkage. It broadly answers calls for examining the dysfunctional effects of HPHRP on employee outcomes (Liao et al., 2009; Nishii et al., 2008). As noted previously, the effect size of the moderation is weak in our sample. Nevertheless, the theoretical relevance of the weak results render some support for the potential effectiveness of perceived support from supervisors for employee well-being at work. The buffering role of MS is in line with previous research which indicates that MS alleviates the influence of JD on employee well-being (Demerouti et al., 2001; Humphrey et al., 2007; Johnson & Hall, 1988). Aspects of perceived managerial trust and appreciation that constitute perception of MS facilitate employees to cope with the demands at work which, in turn, guards against ill-health (Bakker et al., 2007). The results support the JD-R model by empirically demonstrating, albeit weakly, that employees facing demanding work conditions can be supported by offering appropriate job resources, such as MS. Two organisations can adopt identical HPHRP, but employees can derive very different experiences from them subject to how their managers support them at work. This study focussed on MS as a type of organisational-level resource in alleviating the negative consequences in the HPHRP-well-being relationship. Prior research has highlighted supportive leadership and job autonomy as moderators of this relationship. Future research can consider the role of other leadership styles and different organisational-level and individual-level resources in minimising the negative effects of JD on different facets of well-being, such as social or financial well-being.

We also disaggregated the four dimensions of HPHRP to assess the relative impact of each of the components on JD and employee outcomes and examined the moderating effects of MS in these relationships. Despite the small effect sizes of the associations, the results provided useful theoretical insights. Two of the HPHRP bundles showed associations in the expected directions, which corroborated the labour process view that HPHRP have detrimental effects on employees. The moderating role of MS was also observed. However, contrary to our expectations, the opportunity-enhancing bundle was negatively related to anxiety. The opportunity-enhancing HR practices create scope for employees to use their skills and make them feel important within the workplace. Thus, employees may feel valued and more engaged. Engaged workers often experience positive emotions (Schaufeli & Van Rhenen, 2006) which reduce anxiety (Bakker & Demerouti, 2007). Likewise, the examination of the direct relationships between HPHRP bundles and JD highlighted one exceptional result. The motivation-enhancing practices were negatively related to JD. This is in line with the effort reward imbalance model (Siegrist, 1996). Effort reward imbalance postulates that having appropriate rewards may minimise the unfavourable effects of effort expenditure. It seems that when compensation is tied to performance or when a clear and objective performance appraisal system is in place, JD can be justified by the subsequent merits. Accordingly, JD mediated a negative association between the motivation-enhancing bundle and anxiety and

depression. Finally, the ability-enhancing bundle had no significant relationship with the majority of outcomes in the study. This suggests that such HR practices (e.g., induction, recruitment and selection practices, and formal training process) simply exemplify basic HR process-related practices involved in employing staff. These practices may not tangibly add to well-being but their absence may have detrimental effects (Van De Voorde et al., 2012).

5.2 | Managerial implications

The study highlights that managers should be wary of overly relying on HPHRP's mutual gains perspective on employee well-being. They should avoid placing overwhelming JD on workers as these are predictors of employee *un*-well-being (Jensen & Van De Voorde, 2016). The relatively small effect sizes observed in the study should not delude organisations towards overzealous and/or a slack implementation of HPHRP. As such, HPHRP and its sub-dimensions risk overloading employees with additional work responsibilities and time pressure and undermine their well-being. In this context, the overzealous adoption of opportunity-enhancing and commitment-enhancing practices may be implemented with caution. On the contrary, employees should be rewarded fairly and generously. The present study encourages policymakers and HR managers to enhance MS mechanisms in their workplaces. Working under a supportive superior can ameliorate the negative impact of work demands and pressure without compromising employee well-being. Specifically, raising the level of MS is crucial for organisational settings where reducing or re-designing JD is particularly difficult. Managerial support signals to employees that the organisation values and cares about their well-being, work and home life and family needs. These positive signals ease the dysfunctional pressures of work and trigger employee well-being (Edwards & Peccei, 2010). In such a situation, HPHRP may still prompt employees to expend more effort, but without compromising their sense of well-being. Accordingly, organisation can design and consistently offer training programmes to managers at all levels of the organisation which inculcate caring behaviours to support their subordinates. Moreover, caring style of management could be introduced as one of the criteria for external or internal hiring of managers.

5.3 | Limitations and directions for future research

The first limitation to the study pertains to the use of cross-sectional data for both implemented HPHRP and employee-level variables, which precludes drawing conclusive statements about causality in the explored relationships. Future longitudinal research should attempt to explore if employee perceptions of work demands change over time, with subsequent effects on well-being. Second, the current study limited employee well-being to health-related well-being. The expanded version of the current study's model incorporating Grant et al.'s (2007) encompassing well-being types, specifically social well-being, would make a promising future enquiry. Likewise, this

study showed the differential associations of four bundles of HPHRP on JD, MS and well-being as a supplementary analysis. Future research may further examine different HPHRP configurations and the conditions under which these relate to JD and occupational health outcomes (Ogbonnaya et al., 2017). Further, replication of the study in other country/institutional contexts could be particularly beneficial given the emphasis that academics like Wood et al. (2012) and Godard (2010) place on the institutional context of HPWS (Ho & Kuvaas, 2020). Although matched employer-employee data were used in the study, the implemented HPHRP are only being rated by one manager in workplaces. Likewise, the data on JD and well-being is collected from a single source (i.e., employees). Research has shown that the reliability of a single rating might be low (Gerhart et al., 2000). The response rates for the study's data may be considered less representative, specifically when the data is collected from one respondent at the workplace level and up to 25 employees within a workplace. Nevertheless, such response rates reflect prevailing trends in business surveys. The WERS is one of the most authoritative sources of information on employment relations in Great Britain and has been used extensively in academic research in the UK. Limitations also arise due to some inherent constraints of using an existing survey data. The 2011 WERS limits our ability to use more established and validated measures of our constructs, most notably the measure of JD. Nevertheless, the data in the pilot study provided evidence for both convergent and discriminant validity of constructs used in the WERS 2011 (van Wanrooy et al., 2013). Some may also question the use of two-item measure for JD in the study as such scales are statistically less stable than multiple-item measures. Nevertheless, the use of two-item scales have been argued elsewhere to be reliable and are in line with prior work (e.g., see Wood et al., 2020). Considering that the data collection process for the WERS 2011 was completed in mid-2012, the sample may be considered less relevant now. Nevertheless, since the WERS 2011 captures UK's employment relations landscape of 2008 recession, it may still resonate with the operation of workplaces in the current time of economic and social uncertainty. Another plausible limitation is the low HPHRP, moderation and moderated mediation effect sizes. The issue is nuanced for the interaction effects of MS and JD on well-being due to the small moderation co-efficients. Nonetheless, the moderation effects are consistent with theoretical considerations regarding the buffering potential of job resources on JD for positive well-being outcomes (Bakker & Demerouti, 2007). It is also notable here that small effect sizes are common in studies based on the British WERS (e.g., Guest & Conway, 2007; Ramsay et al., 2000; Wood & De Menezes, 2011; Wood et al., 2012) and across a large sample a small effect size is potentially of great practical significance (Ogbonnaya et al., 2017). Nevertheless, some caution may be used in interpreting our findings. Future research can also try to validate this study's results in a different sample with a higher response rate for wider generalisability of findings. Despite these limitations, the study helps provide a better understanding of how and when HPHRP are related to well-being via the mediating role of JD and the moderating role of perceived MS.

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CONFLICT OF INTEREST STATEMENT

The authors report no conflict of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are openly available in the UK Data Service at <https://ukdataservice.ac.uk/>, SN: 7226, <http://doi.org/10.5255/UKDA-SN-7226-7>.

ORCID

Suhaer Yunus  <https://orcid.org/0000-0003-3325-7016>

ENDNOTES

¹ The full list of HPHRP, the associated items and their scales is provided in Appendix 1 (Tables 1–4)

² We also calculated alternative reliability co-efficients for this two-items scale. Spearman-Brown co-efficient = 0.579; Guttman Split-half coefficient = 0.557.

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SUPPORTING INFORMATION

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