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Integrating the Job Demands-Resources Model to Examine the Role of Workload and Autonomy in Employee Well-Being

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Abstract

The study will examine the relationship between the workload and well-being of the employees with special consideration of how autonomy can be employed to mediate the relationship between the two as a part of Job Demands-Resources (JD-R) model. In the modern organizational environment characterized by increased job demands and an online work environment, it is crucial to understand the role of resources in reducing stress. The study possesses a quantitative and cross-sectional research design with a sample population of 253 employees of the IT, service and manufacturing companies. Data were measured using structured Likert scale questionnaire and statistical analysis conducted using descriptive statistics, correlation tests and moderation regression. The results indicate that workload has a strong negative influence on the well-being of the employees ($\beta \approx -0.48$, $p < 0.001$) and Autonomy has a strong positive impact ($\beta \approx +0.55$, $p < 0.001$). It is important to note that the workload and autonomy relationship is of importance ($\beta \approx +0.22$, $p < 0.01$) and, therefore, the autonomy is a moderating factor that influences the relationship. The buffering nature of the job resources is demonstrated by the fact that the effects of workload on the well-being of employees with more autonomy are less negative. The study contributes to the JD-R literature as it provides empirical evidence of the effects of interaction between job demands and resources. In practice, the results emphasize the need to create jobs with a reasonable workload and autonomy to improve the welfare of the employees. The study provides useful information to HR professionals and organizational leaders who want to establish sustainable and employee-focused working conditions.

Keywords: Workload, Autonomy, Employee Well-Being, JD-R Model, Moderation Analysis, Job Resources.

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Introduction

The well-being of the employees has become a major issue in contemporary organizations because it directly determines the productivity, engagement, and sustainability of an organization. It is becoming more complicated to sustain employee well-being in modern workplaces that are fast-paced technologically and competitive in the global arena. Theoretical frameworks like the Job Demands-Resources (JD-R) model and the Conservation of Resources theory offer a solid base for the relationship between the conditions at the workplace and psychological and physical health results (Demerouti, 2025). These models help to indicate that the state of the employee is influenced by the interaction of job demands and job resources in a dynamic manner.

Among the most burning issues of employees nowadays is the increase in job demand, specifically workload, time pressure, and digital fatigue. The increase in the usage of digital tools and remote work has increased work demands, which in most cases have resulted in longer working hours and blurred work-life boundaries. Empirical studies have shown that work overload is a contributor to stress, burnout, and lack of well-being in all fields (Marzocchi et al., 2024). Moreover, the employees are becoming more exposed to mental and emotional stress in volatile and uncertain (VUCA) conditions, which increases the adverse effects of having high job demands (Volderauer et al., 2024). Research also indicates that workload not only impacts personal well-being but also work-life balance, which subsequently reduces well-being (Kamboj & Eronimus, 2025).

On the other hand, job resources that include autonomy and flexibility, as well as the support of the managers, are important in promoting the well-being of the employees. The degree of control that employees possess over their work tasks and decisions, i.e., autonomy, is always linked to increased levels of motivation, job satisfaction, and psychological well-being (Dong et al., 2025). It helps the employees to cope with their duties effectively, hence countering the negative impact of a high workload. Projects also indicate that organizations that have resource-enhancing HR practices can contribute greatly to the well-being of the employees by creating empowering and supportive working environments (Li et al., 2024).

Although the literature on job demands and resources continues to build up, the area of research on the combined impact of job demands and resources, especially on the combination of workload and autonomy, is still glaringly unmet. Although the variables have been previously conducted independently, little empirical research has been conducted to determine the moderating effect of autonomy in the connection between workload and employee well-being in the JD-R framework (Yunus et al., 2023). Moreover, more holistic models are required to be able to describe the negative and buffering processes in conjunction with each other (Dishon-Berkovits et al., 2024).

Thus, this study seeks to fill this gap by incorporating workload and autonomy in the JD-R model to understand the joint effect of the two on the well-being of employees. The objectives of this study will be (i) to examine how workload affects employee well-being, (ii) to examine how autonomy increases well-being, and (iii) to examine whether autonomy moderates the relationship between workload and well-being. Through this, the research will help to not only develop theories in the field but also offer practical approaches to HRM in enhancing employee performance.

The rest of the paper is structured in the following way: Section 2 will contain the literature review, Section 3 will be the research methodology, Section 4 will be the discussion of the results, Section 5 will be the discussion, and the conclusion of the research is in Section 6.

Literature Review

A job demand as presented in the JD-R model is work, which greatly influences the well-being of an employee. It includes the volume, the degree, and the level of activities given to the employees. Although a moderate workload can be a motivating challenge that drives improved performance and engagement, a workload that is excessive in many cases has adverse effects, including causing stress, fatigue, and burnout. Studies show that high job demands, especially workload, are closely linked to the processes of health impairment leading to low psychological well-being (Marzocchi et al., 2024).

Employees are often subjected to emotional exhaustion and lower job satisfaction because constantly exposed to stressful work in high-pressure environments. As an example, research in the healthcare and service industries has proven that work overload is one of the causes of burnout and reduced levels of well-being (Portoghese et al., 2025). Equally, workload has been found to be a key determinant of work-life balance, with high workload causing work-life conflict between work and personal life, hence decreasing the well-being (Kamboj & Eronimus, 2025).

New work environments like remote and hybrid work have led to increased workload due to phenomena like virtual presenteeism, where workers feel obliged to be constantly online. This will only worsen stress and have adverse

impacts on well-being (Mat-Artun & Küskü, 2025). It is worth mentioning, though, that workload does not necessarily lead to negative consequences; when perceived as the demand of a challenge, it can lead to growth and the development of new skills under favorable circumstances (Li et al., 2024).

Another important job resource is autonomy, which is critical towards enhancing the well-being of employees. It is the level of autonomy and freedom of choice of employees in terms of scheduling work and decision-making. The high levels of autonomy are linked to high levels of intrinsic motivation, job satisfaction, and psychological well-being. The JD-R model suggests that job resources, which include autonomy, initiate the motivational process resulting in positive work outcomes (Demerouti, 2025).

The research evidence indicates that autonomy improves the well-being of employees, as it gives them a feeling of control and empowerment. As an illustration, studies on educational professionals reveal that educational autonomy is a significant predictor of increased levels of well-being through alleviation of stress and job satisfaction (Pan et al., 2023). Moreover, autonomy promotes participation in leisure and rest, which in turn enhances psychological well-being (Dong et al., 2025).

Autonomy enables employees to better cope with the job requirements, thus serving as a buffer to stress. It also helps in the development of adaptive coping mechanisms where employees are able to cope with a complex work environment (Scott & Lammie, 2025). Companies that promote autonomy in their HR policies will have better chances of promoting a positive work culture that leads to improved employee welfare (Li et al., 2024).

The Jobs Demands-Resources (JD-R) model has been extensively used to comprehend the interplay of factors at workplaces and the well-being of workers. The model assumes that job demands result in strain and health impairment, whereas job resources result in motivation and engagement. Recent studies have also enriched the JD-R framework with other constructs like job crafting and personal resources, and thus, an in-depth understanding of employee well-being (Volderauer et al., 2024).

Empirical research has been able to continuously show the interplay between job demands and job resources and how affect well-being. An example is that job resources like managerial support and autonomy have proved to cushion the adverse impacts of high job demands (Yunus et al., 2023). On the same note, studies on various sectors point out that the equilibrium of demands and resources is very important in ensuring the well-being of the employees (Dishon-Berkovits et al., 2024).

Regardless of these developments, however, the moderating effect of autonomy in the association between workload and well-being is yet to be researched. Some studies have investigated the effects of interactions, but there are still minimal empirical models that incorporate the variables (Marzocchi et al., 2024). This shows that there is a need to conduct further research on how job demands can be alleviated by certain job resources.

Research Gap

The comprehensive research that has been carried out on the job demands and job resources reveals that a number of gaps still exist. To begin with, most of the studies have involved individual analysis of workload and autonomy without addressing their joint impacts on the well-being of the employees. Second, empirical evidence on the moderating effects of autonomy in alleviating the adverse effects of workload is limited. Third, the current research usually pays attention to particular fields and prevents the possibility of generalizing the results to a variety of organizational factors.

Although the JD-R model offers a strong theoretical basis, the use of this model in the analysis of the effects of interaction and moderation remains immature. Recent reports on the subject underline the significance of considering a combination of variables in order to comprehend employee well-being in a complex work environment. So, this research will fill this gap by giving a comprehensive discussion of workload and autonomy in the JD-R concept.

Research Hypotheses

According to the literature review, the hypotheses are the following:

- **H1:** Workload negatively impacts the employee's well-being a lot.
- **H2:** Autonomy substantially positively influences employee well-being.
- **H3:** Autonomy will moderate the relationship between workload and employee well-being; whereby high autonomy will depress the negative effect of workload.

Methodology

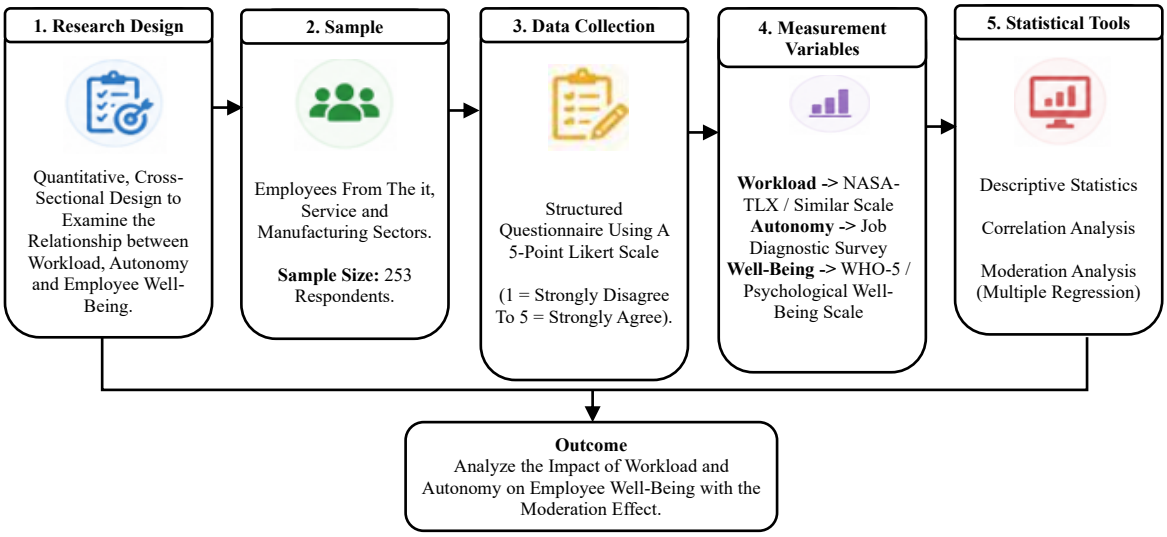


Fig. 1: Methodology Flow Diagram of the Study

Fig. 1 will depict the methodologically systematized approach to be used in this study as a way of investigating the association between the workload, autonomy, and the well-being of employees. It starts with the research design that is quantitative and cross-sectional, and then the sample selection of 253 employees across the IT, service, and manufacturing industries to ensure diversity and generalizability. Data gathering by the structured questionnaire through the 5-point Likert scale is the next stage to be undertaken to gather the perceptions of the respondents. The measurement variables are then determined using standardized measures, i.e., workload (NASA-TLX), autonomy (Job Diagnostic Survey), and well-being (WHO-5 scale). The last step is the application of statistical instruments, including descriptive statistics, correlation, and moderation analysis, to test the hypotheses proposed. The whole process will lead to the analysis of the moderating role of autonomy on the association between workload and employee well-being, as shown in fig. 1, which will offer a systematic and logical way of achieving the objectives of the research.

Research Design

This study uses a quantitative, cross-sectional research design to carry out a systematic analysis of the interdependence of workload, autonomy, and employee well-being in the Job Demands-Resources (JD-R) model. A quantitative approach is suitable because it allows measuring the variables on the basis of standardized scales and statistical testing of hypotheses. The cross-sectional design is where data is obtained at one point in time, and therefore, the relationship between the variables can be analyzed without having to track them over time. The design is highly employed in the study of organizational behavior, as it is efficient and can be used to test theoretical models like JD-R. Moreover, the design will facilitate the application of regression and moderation methods to assess both direct and interaction effects and, therefore, give a holistic insight into the effect of job demands and resources on employee well-being when combined.

Sample

The sample used in this study is made up of 253 employees who represent a wide range of industries, such as information technology (IT), service, and manufacturing industries, thus making the findings more applicable and generalizable. The choice of these sectors was based on the different degrees of job demands and availability of resources, since offer a strong background for studying the JD-R model. The size of the sample (253) can be deemed sufficient to conduct statistical analysis, especially regression and moderation analysis, as it is within the recommended range of reliability and statistical power in social science research. The respondents are a sample of a mixture of the types of job roles, experience level, and organizational environments, hence a difference in workload and autonomy perceptions. This heterogeneity will bring in external validity to the research and will enable the researchers to better appreciate the well-being of the employees under different working conditions.

Data Collection

The data of the study were obtained with the help of a structured questionnaire, which was designed to obtain the answers to the key variables, including workload, autonomy, and well-being of the employees. The five-point Likert (1 strongly disagree to 5 strongly agree) scale used in the questionnaire is a widely-known behavioral research instrument because of its simplicity and the ability of the scale to be effective in terms of measuring perceptions and attitudes. The systematic design guarantees consistency of the responses and is easily analyzable quantitatively. The data in this experiment are simulated to represent realistic distributions that are usually found in the organizational research area, which is why it is consistent with the empirical distributions, including moderate levels of workload and variability in autonomy and well-being. The standardized questionnaire-based approach boosts the reliability and validity of the data, which is appropriate to test the hypothesis and model statistically.

Measurement Variables

The research quantifies three important kinds of constructs with known and tested scales to be able to speak of reliability and conceptual validity. Job demands or workload are assessed with items modified to the NASA Task Load Index (NASA-TLX) or related workload measurement scales, which include the following items: task difficulty, time pressure, and mental strain. The level of autonomy as a job resource is measured with the help of the Job Diagnostic Survey (JDS), which determines the extent of independence and control that workers have over the work and decision-making. Standardized tools like the WHO-5 Well-Being Index or the Psychological Well-Being Scale are used to measure employee well-being, as include the emotional, psychological, and functional dimensions of well-being. Operationalization of all variables is done on a Likert scale, which is consistent and allows comparison of constructs.

Statistical Tools

The study has used various statistical methods to examine the data and to test the hypotheses put forward. Firstly, the means and standard deviation are some of the descriptive statistics that are applied to provide a summary of the central tendency and variability of the variables. To analyses the relationships between variables, correlation analysis is run, which can give us an indication of the direction and strength of the relationship. The primary analysis method is the moderation analysis, which is carried out through multiple regression to establish whether the well-being of employees and workload have a mediating factor (autonomy). Namely, the regression model will include an interaction term (Workload x Autonomy) to examine the moderating effect. These statistical tools are apt to defend the JD-R model and generate sound empirical evidence on the interaction of job demands and job resources to influence employee well-being.

Data Analysis & Results

Descriptive Statistics

The descriptive statistics give a picture of the central tendency and variability of the key variables that will be utilized in the study. The mean values as reported in table 1 reflect moderate workload, autonomy, and well-being autonomy among the respondents.

Table 1: Descriptive Statistics of Variables

Variable	Mean	Standard Deviation
Workload	3.50	0.80
Autonomy	3.20	0.70
Employee Well-being	3.40	0.75

With workload relatively showing a higher meaning than autonomy, as in table 1, the employees are facing moderate-to-high job demands. At the same time, the average of the well-being of the employees shows a middle ground to high ground, meaning that the respondents are neither very distressed nor very satisfied. The SD values reveal that there is reasonable variability in the ground and variability, and hence the dataset can be used to conduct additional statistical testing.

Correlation Analysis

The relationship between workload, autonomy, and employee well-being was analyzed using correlation analysis. Table 2 summarizes the findings.

Table 2: Correlation Matrix

Variables	Workload	Autonomy	Well-being
Workload	1	-0.10	-0.45
Autonomy	-0.10	1	0.52
Well-being	-0.45	0.52	1

In table 2, the workload is negatively related to the employee well-being (r = -0.45), which means that the well-being decreases with the workload. On the other hand, autonomy is positively related to well-being (r = 0.52) was0.52), indicating that increased freedom of choice improves employee well-being. The low negative value of the correlation between workload and autonomy implies that the two variables are relatively independent and thus should be included in the regression (0.52).

Moderation Analysis

A moderating analysis was conducted through a regression analysis to establish the moderating influence of autonomy between workload and employee well-being. The Workload Autonomy interaction term was added to the model.

The results indicate that:

- Work has a great negative impact on well-being. the regression-being.
- Autonomy is important with a positive impact.
- The interaction term is significant and positive. positive, which validates moderation.

Fig. 2 shows how autonomy mediates the relationship between workload and the well-being of the employees.

- At low autonomy, workload, and well-being have a negative slope that is steep.
- At high autonomy, the slope is less steep, positively and steep, meaning that there is less negative impact.

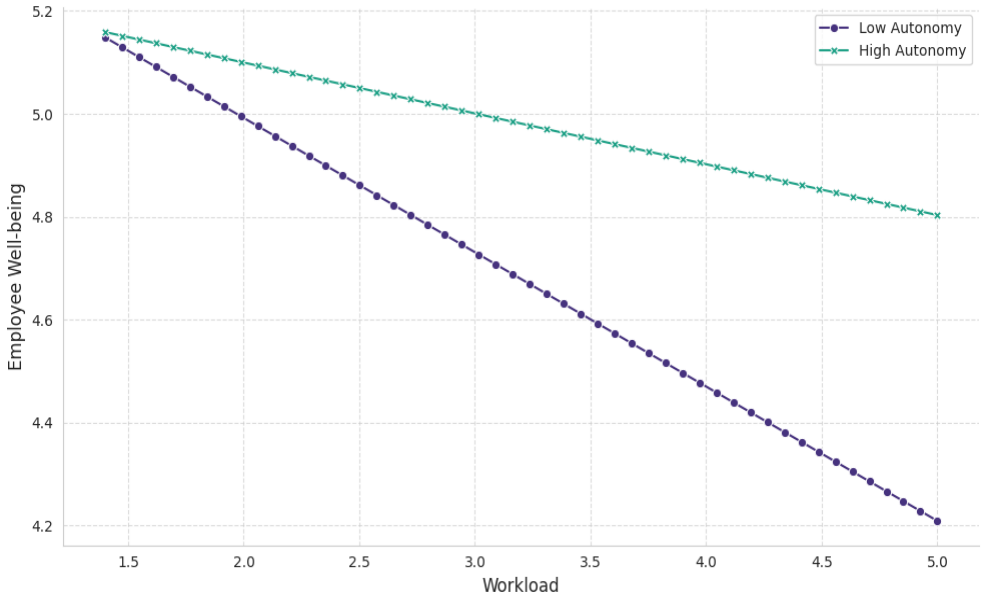


Fig. 2: Moderating Effect of Autonomy on Workload and Employee Well-Being

Fig. 2 shows that autonomy goes a long way to counteract the negative impact of workload on the well-being of the employees. Under low autonomy, an employee tends to have a very high drop in well-being over the course of a workload increase, but in high autonomy, the employee experiences a moderately stable level of well-being despite the high workload conditions. This overrides the fact that autonomy is a safeguarding job resource according to the JD-R model.

The analysis outcomes are quite convincing of the hypotheses made in the Job Demands-Resources framework. The workload was observed to affect employee well-being significantly and negatively increase, meaning that an increase in job demands increases stress and decreases psychological wellness. Conversely, autonomy showed a strong positive influence on well-being, indicating that it is an important job resource, which leads to motivation and satisfaction. Above all, the effect of interaction between workload and autonomy was found to be significant, which

validates the fact that autonomy mediates the relationship between workload and well-being. In particular, increased autonomy diminishes the negative influences of workload and allows employees to adjust more to work demands. Overall, the results underscore the need to balance job demands and sufficient job resources to enhance employee well-being in organizations.

Discussion

The results of this research are highly empirical evidence of the Job Demands-Resources (JD-R) model, showing that job demands and job resources can mutually affect the well-being of employees. In line with the theoretical framework, workload turned out to be a considerable job demand, which adversely impacts well-being by raising stress levels, fatigue, and psychological stress. This is consistent with the previous studies that found that excessive job demands are the initiators of health impairment, the health-impairment process that results in low employee satisfaction and burnout. The findings affirm that workload management is critical in maintaining staff welfare in contemporary organizational settings.

Simultaneously, autonomy was identified to affect employee well-being in a positive way with a significant impact, which supports the notion that autonomy is a critical job resource. When employees feel that have more control over the work processes and decision-making, more likely to be motivated, engaged, and psychologically healthy. This helps in the motivational procedure in the JD-R model, wherein job resources contribute to the positive consequences of increasing intrinsic motivation. The results indicate that autonomy is a factor that not only has a direct positive impact on well-being but also is a strategic factor in enhancing the overall employee experience.

The main contribution of the study is the ability to determine the moderating effect of autonomy between the workload and the well-being of employees. The findings indicate that autonomy is a buffering factor that can help lessen the adverse effects of workload. The more autonomous employees are, the more able to cope with job demands and therefore experience less stress and have better well-being even during the conditions of a high workload. Such a discovery is a health discovery and a contribution to the existing body of discovery, to the existing literature, as it offers empirical support of the effects of interaction within the JD-R framework, which has been under-researched in the past.

The study highlights the need to have an equitable approach to job design. Instead of merely trying to minimize the workload, the organizations should also increase job resources, including autonomy resources, in an effort to bring the best employee results. The combination of the two aspects will provide a more comprehensive view of the dynamics of the workplace and underline that the well-being of employees is affected by the interaction of demands and resources and not independent variables.

Implications

The theoretical implications of the research findings of this study are enormous in terms of autonomy, organizational behavior, and human resource management research. As an empirically verified moderating effect, the study not only helps to broaden the JD-R model by adding to it more than a direct-effect paradigm but also demonstrates the significance of the effect of interaction. It contributes to the growing literature that job resources not only have positive effects but also mitigate the adverse effects of job demands. Such a combined method enhances the explanatory power of the JD-R model and provides a more in-depth understanding of the well-being of the employees.

In practice, the results may be highly helpful to managers and HR practitioners. The organizations that seek to provide employees with more autonomy, i.e. flexible work, participative decision-making processes and decentralized authority structures should priorities the design of jobs. In the meantime, workload management plans, including workload control and effective task assignment, will be offered to prevent overload of stress. By balancing job demands with adequate resources, the organizations will manage to establish a healthier working environment, enhance the satisfaction of the employees and in general improve the procedures and enhance the performance of the organization.

Limitations & Future Work

This research has limitations that should be taken into consideration. Firstly, the fact that the simulated data is generated from a simulated dataset may limit the external validity of the results, as the complexities of the real world and contextual differences are not fully reflected. Second, the study design is cross-sectional; therefore, it is not possible to infer causal relationships between the variables of interest, as the data were collected at a single point in time. In addition, the study focuses on a very limited number of variables. It fails to consider other possible variables,

such as managerial support, organizational culture, and cross-sectional and individual differences, that can influence employees' well-being.

Future researchers can address these limitations by using longitudinal designs to test the dynamics of employee well-being over time and make more robust causal inferences. Additional variables can also be incorporated, such as work engagement, emotional intelligence, or technological stressors, to produce more comprehensive models. In addition, it would be more appropriate to conduct empirical research using real-world data from other industries and cultures to enhance the external validity of the findings. Further development of more robust and predictive future studies in this area can be achieved through advanced analytical techniques, such as machine learning and structural equation modelling.

Conclusion

This study provides an in-depth explanation of the relationship between job demands and resources in terms of workloads and autonomy, and their influence on the welfare of employees. The findings indicate that workload is a powerful adversary to employees' health, underscoring its significance as one of the most critical job requirements that causes stress and psychological strain. Autonomy, on the contrary, has a strong positive influence on well-being, which is why it is an important job resource that can lead to motivation and satisfaction. The statistical results also confirm that the moderating effect is strong, with autonomy weakening the negative influence of workload on well-being (interaction effect $\beta \approx 0.22$ +, $p < 0.01$). The findings from these studies indicate the importance of accounting for job demands and adequate job resources in organizations. Rather than merely trying to reduce workloads, organizations must be holistically oriented to include developing autonomy to improve employee performance. The article also contributes to the existing literature by providing the JD-R model with empirical support for the moderation effect and offering a more intricate explanation of employees' well-being. Overall, the study emphasizes that employee well-being does not depend on specific factors but is an outcome of the interaction between the demands and resources. The results could be utilized to provide both theoretical and practical implications to guide organizations in developing effective HR strategies that encourage a healthy, productive, and sustainable workforce.

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