

A Job Demands-Resources Approach to Proactive Work Behavior in Higher Education Institutions (HEIs) of a Developing Country with the Moderating Role of Perceived Organizational Support

Kashif Mehmood¹, Muhammad Asif Zaheer², Muhammad Sarfraz Latif³ and Temoor Anjum⁴

<https://doi.org/10.62345/jads.2025.14.3.137>

Abstract

This research aims to examine the effects of job demand and job resources on job strain, work engagement, and proactive behavior in higher education institutions (HEIs) in Pakistan, with POS as a moderating variable. Data were collected from 441 faculty members working at HEIs in Pakistan. Structural equation modelling was performed to test the proposed model. Results revealed that job demands have a significant positive effect on job strain, but a negative influence on proactive behavior and work engagement. Moreover, job resources have a significant positive effect on proactive behavior and work engagement, but a negative influence on job strain. Similarly, job strain negatively influences proactive behavior, while work engagement positively influences it. Furthermore, job strain partially mediated the relationship between job demands and job resources with proactive behavior. Likewise, work engagement partially mediated the relationship between job demands, job resources, and proactive behavior. Finally, POS positively moderates the relationship between work engagement and proactive behavior, but negatively moderates the relationship between job strain and proactive behavior. POS does not moderate the association between job resources, job demands, and proactive behavior. This study has several implications; organizations should take precautionary measures in the context of job demand and strain to enhance proactive behavior. Management should focus on POS and work engagement to foster proactive employee behavior. POS and work engagement should act as catalysts in HEIs in Pakistan to enhance proactive behavior.

Keywords: Job Demands, Job Resource, Job Strain, Work Engagement, Perceived Organizational Support, Proactive Behavior.

Introduction

In the modern corporate world, organizational innovations influenced by rapidly advancing information technology and environmental conditions result in changes to job designs and the more difficult tasks employees must perform (Demerouti et al., 2012). Therefore, to sustain organisational competitiveness, firms increasingly demand that their employees adopt proactive behaviours in situations beyond those typical of the job (Demerouti et al., 2012). Job crafting, one of the proactive behaviours in the workplace, refers to actions that actively alter the physical,

¹PhD Scholar, University Institute of Management Sciences, PMAS-AAUR, Rawalpindi. Email: kashi@uaar.edu.pk

²Assistant Professor, University Institute of Management Sciences, PMAS-AAUR, Rawalpindi.

Corresponding Author Email: dr.asif@uaar.edu.pk

³PhD Scholar, University Institute of Management Sciences, PMAS-AAUR, Rawalpindi.

⁴Assistant Professor, University Institute of Management Sciences, PMAS-AAUR, Rawalpindi.

Email: temooranjum@uaar.edu.pk



cognitive, and relational frameworks of a person's work (Wrzesniewski & Dutton 2001). By altering the amount, type, or sequence of work practices they use in their workplace, forming work-related perceptions, or establishing their social ties in the workplace, employees create jobs that suit their skills and needs (Slomp et al., 2015; Wrzesniewski and Dutton, 2001). Therefore, by modifying their behaviour patterns, employees can better match their needs to employment requirements (Tims et al., 2016). This viewpoint perceives the behaviours that people acquire to craft their jobs as personal practices that improve the person-job fit (Tims et al., 2016).

Despite growing interest in understanding the antecedents of proactive behavior in organizational settings, limited research has examined the complex mechanisms by which job demands and job resources influence it. Specifically, the mediating roles of work engagement and job strain remain under-investigated when examined concurrently. While the Job Demands-Resources (JD-R) model provides a robust theoretical framework, most existing studies have either focused solely on positive pathways (via work engagement) or negative pathways (via job strain), rather than integrating both to capture a balanced understanding of employee outcomes (Bakker & Demerouti, 2017; Schaufeli, 2021).

Moreover, the moderating role of Perceived Organizational Support (POS) has received insufficient attention, particularly as a buffer against the effects of high job demands and as an amplifier of the benefits of job resources for engagement and strain (Eisenberger et al., 2020; Caesens et al., 2021). There is a scarcity of empirical studies that investigate how POS influences the relationship between JD-R components and proactive behaviors through dual mediators of engagement and strain, particularly in dynamic or high-pressure work environments. Thus, there is a clear need for more comprehensive, moderated mediation models that incorporate both positive (work engagement) and negative (job strain) mediators, while assessing POS as a contextual buffer. Addressing this gap could significantly advance our understanding of how organizations can foster proactive behavior under varying job conditions.

Literature Review and Hypotheses Development

The JD-R model contends that excessive job demands, such as task shifts and work-related ambiguities, trigger a health impairment process that negatively impacts both physical and mental health. The term "job demands" refers to elements of a job that require ongoing physical and/or mental effort and are thus associated with specific physiological and/or psychological costs. The fundamental tenet of the health impairment process is that people engage in compensatory mechanisms when faced with high work demands, which might deplete their energy (Bakker et al., 2012; Hockey, 1993). Consequently, job expectations are inversely correlated with work engagement and positively correlated with stress, including exhaustion, burnout, and health complications. Additionally, the JD-R model provides organizational tools that could improve job engagement and lessen burnout. Organizational resources help achieve professional objectives, lower the expenses of meeting work expectations, and promote personal growth. Employees get protection from many Institutional resources from burnout and are encouraged to engage in employee engagement (Crawford et al., 2010; van Wingerden et al., 2017), because for autonomy, employees get satisfaction of their needs, expertise, and belongingness, which increases their intention to invest time and skills in the job (Bakker et al., 2012). Organizational justice, and specifically interactional justice, has proven a particularly consistent organizational resource across various working settings, even though organizational justice and the JD-R model have only received scant attention in past studies (Boudrias et al., 2010; Campbell, Perry, Maertz, Allen, & Griffeth, 2013). We predicted that interactional justice would be positively and negatively related

to both job engagement and burnout, in light of these findings. High-quality work connections have an immediate and long-lasting influence on a person's cardiovascular, immunological, and neuroendocrine systems; therefore, recent studies (Heaphy & Dutton, 2008; Quinn & Dutton, 2005) indicate that they rejuvenate both physically and emotionally.

Relationship of Job Demand and Proactive Work Behaviour

Research into proactive work behavior (PWB) and job demands has emerged as a crucial topic in organizational psychology, given modern work requirements that require employees to be adaptable and proactive. Individuals who display proactive work behavior independently take action in advance to create better work environments and foster personal development by proposing improvements, leading, and seeking feedback. Job demands significantly affect PWB only after workers determine their work requirements as either obstacles or opportunities for development. Challenges arising from high workload, time pressure, and responsibility lead to positive outcomes by boosting motivation, learning, and engagement, thereby generating higher levels of proactive behavior. Research shows that hindrance demands create negative effects because workers perceive these obstacles as resource-draining, thereby reducing their ability to exhibit proactive behaviors (Satwika et al., 2025). Furthermore, proactive behaviors are generally positive; when driven by controlled motivation under high demands, they may increase job strain and burnout. Mediating and moderating variables also play a key role; for example, Schmitt et al. (2016) found that transformational leadership enhances employee engagement, which in turn supports PWB, especially when job strain is minimized. Thus, while job demands can act as a catalyst for proactive behavior under the right conditions, they can also pose significant risks when not paired with adequate support or resources. Understanding this balance is crucial for organizations aiming to foster a proactive and resilient workforce (Parker et al., 2010). Therefore, we proposed the following hypothesis:

H1: Job demands have a significant negative impact on proactive work behavior.

Relationship of Job Demand and Job Strain

The relationship between job demands and job strain is a core topic in occupational health psychology and is grounded in the Job Demands–Resources (JD-R) model. The stress known as job strain arises when workers experience physical, emotional, and psychological distress due to high job demands, such as excessive workloads and time constraints, emotional labor tasks, and unclear role definitions. Research based on the Job Demands–Resources (JD-R) model suggests that when work demands exceed employees' coping resources, they tend to develop strain symptoms, including burnout, anxiety, and physical disorders (Demerouti & Bakker, 2023). In 2007, Bakker & Demerouti found through their research that remote workers faced greater job demands, worked longer hours, and experienced poor separation between their work and personal lives, which increased stress and burnout. The research demonstrates that organizations must implement effective strategies to manage job demands to prevent harm to employee health and well-being (Demerouti & Bakker, 2023). Related research, including meta-analyses, has strengthened the link between workplace demands and work-related strain. Job demands with a focus on emotional and cognitive requirements create major negative effects on employee well-being when workers lack sufficient resources to counterbalance these requirements, according to Bakker and Demerouti (2021). Researchers have devoted attention to understanding how diverse job requirements affect employee job strain, particularly across different situations. Therefore, we proposed the following hypothesis:

H2: Job demands have a significant positive impact on job strain.

Relationship of Job Demand and Work Engagement

Recent research in organizational psychology examines job demands and work engagement within the Job Demands–Resources (JD-R) framework. Job demands, encompassing workload and time pressure, as well as emotional demands, yield favorable outcomes when resources are sufficient. Job resources maintain their ability to buffer against high job-demand stressors, thereby enhancing work engagement. The lack of sufficient resources leads to high job demands, which, in turn, result in employee burnout and lower levels of job engagement. The JD-R model has received new research attention evaluating how work environments merge with non-work environments. The research showed that home resources mitigate the negative impact of work demands on engagement, whereas home demands intensify these effects (Chen, 2024). Worldwide managerial and occupational dynamics encountered excess difficulty due to the COVID-19 pandemic. Research by Gallup (2025) showed that worldwide worker participation declined significantly due to increased job responsibilities and inadequate resources during pandemic conditions. Managers bear more duties without adequate backing, which diminishes their work engagement. Organizations need to allocate sufficient resources, combined with support systems, to maintain employee engagement, as times of crisis create this critical requirement (Bakker & Demerouti, 2016). Multiple factors shape the intricate relationship between job demands and work engagement, including job resources, connections between work and non-work domains, and broader organizational factors. Organizations seeking engaged workers should balance workplace demands and provide resources while establishing supportive systems that focus on employee well-being across all dimensions (Van Heerden et al., 2022). Therefore, we proposed the following hypothesis:

H3: Job demands have a significant negative impact on work engagement.

Relationship of Job Resource and Proactive Work Behaviour

The practice of proactive work behavior (PWB) involves self-organizing activities that aim to advance both individual performance and organizational achievement. Organizations require job resources, including autonomy and performance feedback, as well as social support and development opportunities, to promote this type of behavior. Researchers use the Job Demands–Resources (JD-R) model to demonstrate how job resources help build PWB by boosting motivational and psychological empowering factors among employees (Maden-Eyiusta, 2016). Two primary forms of antecedents can be distinguished in accordance with Crant's (2000) integrative model of the causes and implications of proactive behavior: contextual (i.e., job resources such as job control, feedback, and variety) and individual factors (i.e., intrinsic motivation) (Salanova & Schaufeli, 2008). Studies have confirmed that job resources are positively associated with PWB. Scientists specifically investigated this association in retail banking and identified that autonomy and feedback among job resources increased work engagement, leading to better proactive customer service behaviors. Job resources function as interactive factors that enable employee engagement to activate initiation behaviors. Job resources enable employees to feel competent and autonomous, and powerful at work, which serves as psychological empowerment to drive their proactivity, according to research findings (Bai et al., 2022). Job resources demonstrate distinct positive effects on PWB depending on the stage employees are currently in. Individuals with low demands-abilities experienced higher advantages from job autonomy and task variety because these factors promoted their engagement and proactivity at

work (Zahoor, 2020). Proactive work behavior is significantly predicted by job resources. Through empowerment and engagement, they function both directly and indirectly, and their influence is further shaped by external factors such as individual fit and leadership. Therefore, creating a resource-rich, encouraging work environment should be a top priority for organizations looking to promote proactive behavior (Ma, 2024). Therefore, we proposed the following hypothesis:

H4: Job resources have a significant positive impact on proactive work behavior.

Relationship of Job Resource and Job Strain

Job strain is a form of psychological stress that employees experience when work demands exceed the employee's ability to cope. According to the Job Demands-Resources Model, job resources can reduce job strain and feelings of stress. Job resources, such as supervisor support, autonomy, feedback, and development opportunities, can lessen the negative impact of job demands on job strain (Bakker & Demerouti, 2017). Employees who receive proper control and support exhibit better stress management, leading to decreased strain (Tuxford & Bradley, 2015). Furthermore, by improving coping strategies, employment resources not only reduce existing stress but also prevent it before it starts. According to Yao et al. (2022), occupational autonomy and opportunities for professional growth improved workers' psychological resilience and reduced the likelihood of stress under duress. All of these studies emphasize that (Bakker & Demerouti, 2017) companies that want to lessen workplace stress need to make investments in easily accessible, useful employment resources that empower and help employee members (Cotel et al., 2021). Therefore, we proposed the following hypothesis:

H5: Job resources have a significant negative impact on job strain.

Relationship of Job Resource and Work Engagement

A fulfilling state of mind called work engagement consists of vigor and dedication, and absorption when employees focus on their work (Tripathi & Sharma, 2016). Work engagement shows a strong association with job resources, which encompass physical elements, psychological support, and social and organizational aspects that help workers achieve their goals, overcome challenges, and drive personal growth (Karanika-Murray et al., 2015). Research over the last five years has demonstrated the integral role of job resources in fostering work engagement across different types of organizations. Work engagement scores among healthcare professionals increased when they received three job resources: task autonomy, supportive supervision, and feedback (Tisu et al., 2023). Employee enthusiasm and commitment are especially important when work environments push employees to high levels of stress, according to research. Psychological empowerment is a vital research area for understanding its role as a mediator. The research by Duan et al. (2024) demonstrated that work resources increased employee autonomy and competence, thereby leading to greater work engagement. These results validate the JD-R model's motivational dynamics, as resources help satisfy psychological needs and generate employee engagement (Cotel et al., 2021). Therefore, we proposed the following hypothesis:

H6: Job resources have a significant positive impact on work engagement.

Relationship of Job Strain and Proactive Work Behaviour

According to the model, Job demands strain, whereas job resources foster engagement, both of which influence proactive work behavior. Current research examines the mediating role of work engagement in the relationship between job demands and proactive work behaviors. This confirms engagement's mediating function in the process. Empirical research during the past five years

confirms the protective nature of work-related resources, which prevents job strain in numerous occupational sectors. Research has repeatedly shown that sufficient job resources minimize job strain by strengthening workers' capacity to handle the workload and emotional demands. Healthcare staff members who displayed greater autonomy and stronger social support networks reported lower emotional exhaustion and less depersonalization (Martinez et al., 2020). The research findings demonstrated how personal attributes affect employees' responses to job requirements and job stress. Staff members with high emotional intelligence or strong social networks tend to manage demanding situations better, leading to lower reports of job strain (Kasemy et al., 2022). Therefore, we proposed the following hypothesis:

H7: Job strain has a significant negative impact on proactive work behavior.

Relationship of Work Engagement and Proactive Work Behaviour

Proactive personalities are more likely to have greater levels of engagement at work. Mubarak et al. (2021), for example, discovered that workers with proactive personalities are typically more creative and engaged in their work. Their research in the Malaysian public sector demonstrated that a relationship between proactive personality and innovative work behavior is mediated by job engagement, highlighting the fact that proactive traits encourage individuals to make innovative contributions to their organizations (Islam & Ajmal, 2024). Offering all employees a personalized feedback report based on this survey may deepen understanding of the work environment and opportunities to optimize alignment between employees' jobs and their individual talents, interests, and passions. The positive relationships identified in the current study provide HR and senior management with information that can help improve their human resources policy. For instance, current businesses that wish to create the best possible environment for job crafting behavior could provide their staff with a variety of HRD activities, such as coaching and training, to help them build their own personal resources (Van Wingerden & Poell, 2019). Therefore, we proposed the following hypothesis:

H8: Work engagement has a significant positive impact on proactive work behavior.

Relationship Job Strain as a mediator between Job Demand and Proactive Work Behaviour

Job strain is a mediating variable that influences how job demands affect proactive work behavior (PWB) in organizational behavior research. Contemporary workplaces include job demands such as workload pressure, emotional challenges, and time-related requirements. Job strain develops according to the Job Demands–Resources (JD-R) model when demanding work exceeds an employee's ability to cope, thus leading to physical weariness, emotional exhaustion, and cognitive overload. This strain leads to a significant reduction in proactive behaviors that employees engage in to enhance the organization (Demerouti & Bakker, 2023). Employees under high strain lose their cognitive, emotional, and motivational energy needed for proactive work behavior. In 2025, Mehmood et al. conducted empirical research showing that job strain reduced employee engagement, leading them to avoid taking initiative or making organizational changes. The researchers established that demanding jobs directly affect PWB through the strain process. In 2024, Ghosh et al. demonstrated that excessive job demands led to psychological strain, diminishing proactive work behavior, particularly among customer service personnel and medical staff. The hypothesized mediating role is based on the conservation of resources (COR) theory, which predicts that people strive to retain and build their resources. Job demands elicit resource depletion of human resource staff and may diminish their motivation for proactive behavior (Hobfoll et al., 2018). Such states are isomorphic to employees who do not estimate their resource

loss, resulting in an incompetent psychological state that suppresses proactive behaviors. At the job recovery level, research shows that strain depletion accumulates daily and eventually leads to less proactive behavior (Sonnentag & Niessen, 2020). This path of causality is, however, influenced by personal and environmental considerations. Emergent Views: Proactive Work Behavior in Challenging Environments. At demanding work settings, proactive behaviors can be sustained by employees with perceived self-efficacy when they have high levels of social support (Taris et al., 2010). Therefore, we proposed the following hypothesis:

H9: Job strain mediates the relationship between job demand and proactive work behavior.

Work Engagement as a mediator between Job Demand and Proactive Work Behaviour

Studies investigating the relationship between work demands and work engagement as antecedents of proactive work behavior remain abundant within the Job Demands-Resources (JD-R) framework. In 2021, Permata & Mangundjaya investigated how job autonomy affects proactive work behavior, with work engagement as a mediator. Their research demonstrated that work engagement serves as a full mediator, seeding proactive behavior processes from job autonomy and exerting an indispensable effect in tracing job resources to proactive behavior. Work engagement serves as a mediator between developmental job resources and proactive behaviors, as also explicated by Maden-Eyiusta (2016). With regard to the research, work engagement mediates the relationships between job autonomy and task variety, and between job autonomy and self-initiated behaviors at work. According to the present study's findings, work engagement mediates the relationship between job demands and proactive work behavior. Work demands deleteriously impact employee engagement, while work resources produce opportunities that paradoxically increase engagement and induce positive employee conduct. They should effectively manage job demands and, at the same time, provide sufficient resources that enhance work engagement and lead to higher levels of proactive work behavior. Therefore, we proposed the following hypothesis:

H10: Work engagement mediates the relationship between job demand and proactive work behavior.

Relationship Job Strain as a mediator between Job Resource and Proactive Work Behaviour

The Job Demands-Resources (JD-R) model has been employed to guide organizational psychology research about the interplay between job resources and job demands, and proactive work behavior. The model states that, when social support is available, motivational aspects of job resources, such as autonomy and feedback, evoke working conditions that lead to engaged and proactive employees. And job demands become deleterious once they exceed some moderate limit because doing so produces job strain that precludes the development of proactivity. Recent scientific studies examined job strain as a factor that mediates between these elements. The research by Ghanayem et al. (2020) examined how job demands relate to job resources and occupational strain within units. The research revealed that when workloads were high, both job autonomy and occupational strain were negatively related, suggesting that work resources can buffer the effects of demanding work. These relationships appeared complex because no significant link was discovered between occupational strain and job satisfaction. The strength of job resources as a factor matters because social characteristics fulfill the complete mediation requirement for motivational states in behavioral influence. Mehmood et al. (2025) investigated the mediating effects of work engagement and job strain on the relationship between job demands and proactive behavior. Work engagement increases with job resources, but high job demands lead to job strain,

which reduces proactive behavior, according to their research findings. Organizations need to maintain proper equilibrium between job requirements and workplace resources to promote active workplace behavior. Job strain serves as a vital mediator between job resources and proactive work behavior, according to these studies. Employee engagement improves due to job resources, yet the combination of elevated demands and strain erases any promotion of proactive behavior. Organizations must work to optimize job resources alongside managing job demands, as this will reduce strain levels and create conditions for employee proactive behavior. Therefore, we proposed the following hypothesis:

H11: Job strain mediates the relationship between job resources and proactive work behavior.

Work Engagement as a mediator between Job Resource and Proactive Work Behaviour

The work by Maden-Eyiusta (2016) examined the mediating role of work engagement in the relationship between developmental job resources and proactive work behaviors. Research indicates that the relationship between job autonomy, task variety, and proactive behaviors is mediated by engagement, underscoring the importance of engagement in the development of workplace proactivity. What really makes employees go the extra mile to solve customer problems? Research by Zahoor (2020) examined the relationships among an employee's innate proactivity, work engagement, and the company's resources. Having a proactive personality is a great start, but according to the study, it's not enough. The employee's natural drive enhances their engagement with the job, and that engagement leads them to provide better service recovery. When workers are engaged, they're using the tools and support their jobs provide to initiate behavior. Engaged workers get true meaning from what they do. So, what does this mean for businesses? The major point of the research is that work engagement connects the two variables. It is a process that converts company assets into employee behavior that the organization can see. Ultimately, the responsibility falls on organizations. Companies need to do more than hire driven individuals to foster a proactive workforce. To get employees more engaged, they need to be purposefully enabled by equipping them properly and cultivating an environment that makes them feel involved. Therefore, we proposed the following hypothesis:

H12: Work engagement mediates the relationship between job resources and proactive work behavior.

Perceived Organizational Support as a Moderator

The perception that one's company cares about them is known as Perceived Organizational Support (POS). Experts believe that this POS plays an important role in how employees experience their work. It's a filter through which they interpret the task pressures and resources from their job. The JD-R Model: Understanding the concept in detail. When there are always very high demands placed on people, they become burned out and check out. In contrast, having the right resources keeps people engaged and wanting to take initiative. POS makes all the difference. POS will condition the entire response of an employee. When employees feel the organization is truly looking out for their best interests and appreciates their contributions, they are more likely to cope with high demand positively rather than negatively. A positive mind helps with task performance. In practical terms, POS acts as a buffer. It lowers stress and increases job satisfaction by lessening the adverse effects of job strain. In workplaces where employees feel their organizations have their backs, they can maintain lower levels of burnout and stress, even under high workloads. Feeling supported helps protect against the taxing demands of any challenging position, it seems (Fan et al., 2022). The study shows that POS acts as a buffer to combat the negative consequences of job

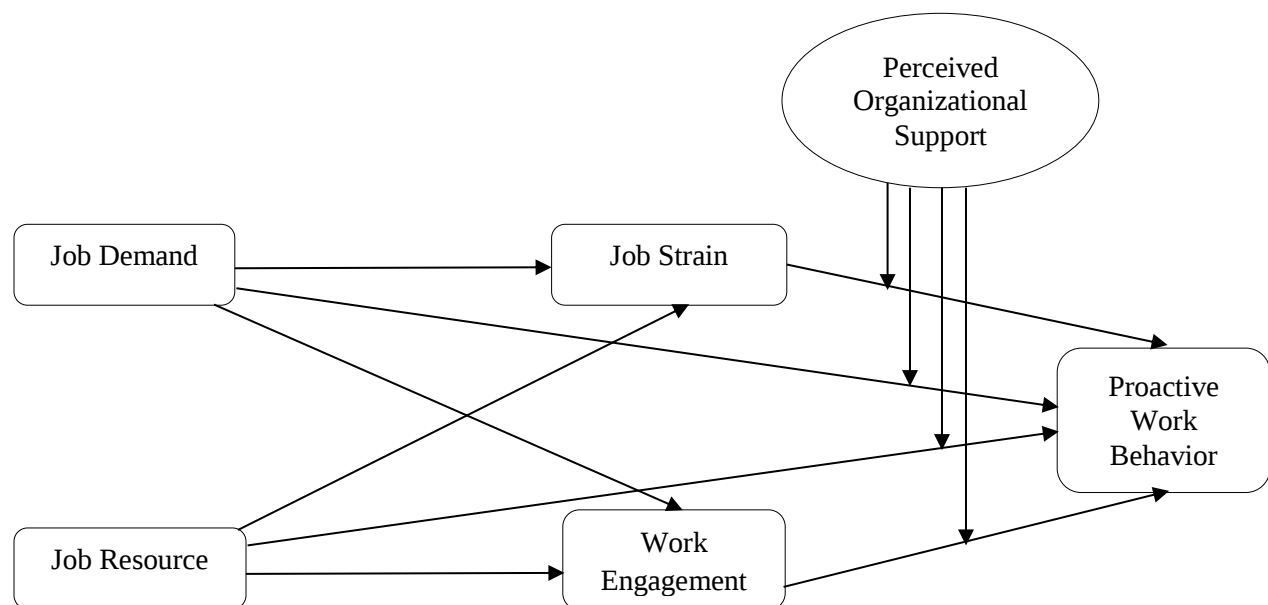
demand. Studies have shown that POS has larger positive effects on work engagement and proactive behavior outcomes (Through JRS such as autonomy, feedback, and social support). Suggestions of the topic • Perceived organizational support by employees enhances performance through resource utilization, resulting in work engagement and proactive workplace behavior (Jankelová et al., 2021). The study demonstrates how POS is an essential ingredient in boosting the benefits derived from job resources. Work engagement increases among employees because POS fosters a deep sense of organizational commitment and a sense of belonging. Employee work engagement increases when they experience high levels of Perceived Organizational Support, according to research, which shows stronger dedication, vigor, and absorption towards their tasks. Engagement within the workforce arises directly from positive organizational support relationships (Maan et al., 2020). Therefore, we proposed the following hypothesis:

- *H13a*: Perceived organizational support has a moderating impact on job demands and proactive work behavior.
- *H13b*: Perceived organizational support has a moderating impact on job strain and proactive work behavior.
- *H13c*: Perceived organizational support has a moderating impact on work engagement and proactive work behavior.
- *H13d*: Perceived organizational support has a moderating impact on job resources and proactive work behavior.

Theoretical Framework

A conceptual framework was thus constructed based on the above discussion, and hypotheses were developed, as shown in Figure 1.

Figure 1: Theoretical Framework



Methodology

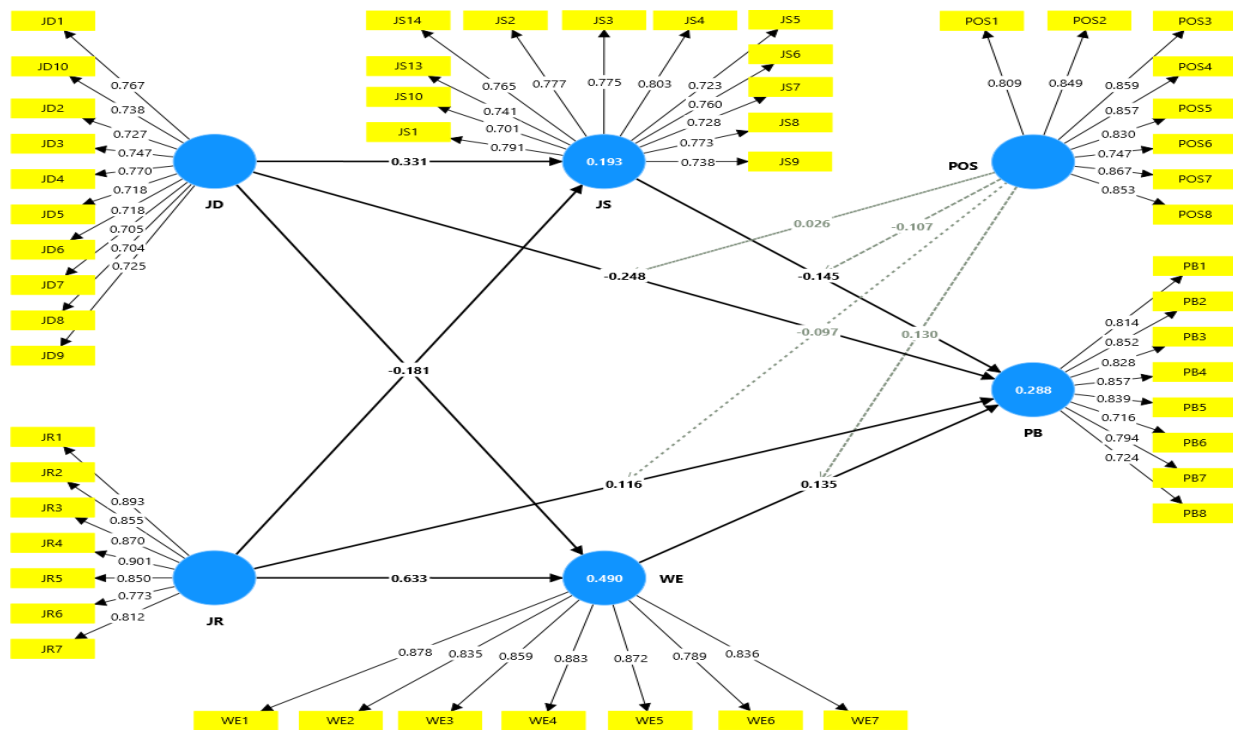
The study aims to examine the impact of job demands on proactive behavior, job strain, and work engagement. Additionally, the study also examines the mediating role of job strain and work engagement between the link of job demands and proactive behavior. Moreover, the study looked at how job strain and work engagement impact on proactive behavior. Primary data is collected through purposive sampling from public and private higher education institutions in Punjab, Sindh, KPK, and Balochistan. Data are collected using a questionnaire tool. A total of 441 informative responses were collected and analyzed using SmartPLS. Before testing hypotheses, the researcher must first ensure the reliability and validity of the collected data, and later proposed hypotheses were evaluated using PLS-SEM. For this research, a cross-sectional and quantitative research design was used based on the survey method. The data was collected in the last quarter of 2023.

Table 1: Variables

Variable	Item	Reference
JD	11	(Han et al., 2020)
JR	9	(Han et al., 2020)
JS	14	(Wall et al., 1996)
PB	8	(Parker and William, 2006)
POS	8	(Eisenberger et al., 1986)
WE	9	(Schaufeli et al., 2006)

Data Analysis

The data analysis followed the standard two-step procedure for Partial Least Squares Structural Equation Modeling (PLS-SEM), which involves assessing the measurement model before evaluating the structural model. The measurement model was validated by confirming internal consistency reliability, convergent validity, and discriminant validity. The results demonstrated strong internal consistency, with all composite reliability (CR) scores exceeding the threshold of 0.70. Convergent validity was also established, as the average variance extracted (AVE) for every construct surpassed the required value of 0.50. The factor loadings, CR, and AVE scores are presented in the table below. Figure 2 presents the factor loading of items.

Figure 2: Algorithmic Model**Table 2: Construct reliability and validity**

	Cronbach's alpha	Composite reliability	Average variance extracted (AVE)
JD	0.904	0.92	0.536
JR	0.936	0.949	0.725
JS	0.932	0.941	0.573
PB	0.921	0.936	0.648
POS	0.938	0.948	0.697
WE	0.936	0.948	0.724

Discriminant validity was then assessed to ensure that each construct in the model was distinct and measured a unique phenomenon, rather than overlapping with others. We have used Fornell–Larcker criterion to measures the DV.

Table 3: Fornell Larcker

	JD	JR	JS	PB	POS	WE
JD	0.732					
JR	-0.422	0.852				
JS	0.408	-0.321	0.757			
PB	-0.422	0.36	-0.295	0.805		
POS	-0.004	0.026	0.223	0.149	0.835	
WE	-0.402	0.689	-0.315	0.379	0.096	0.851

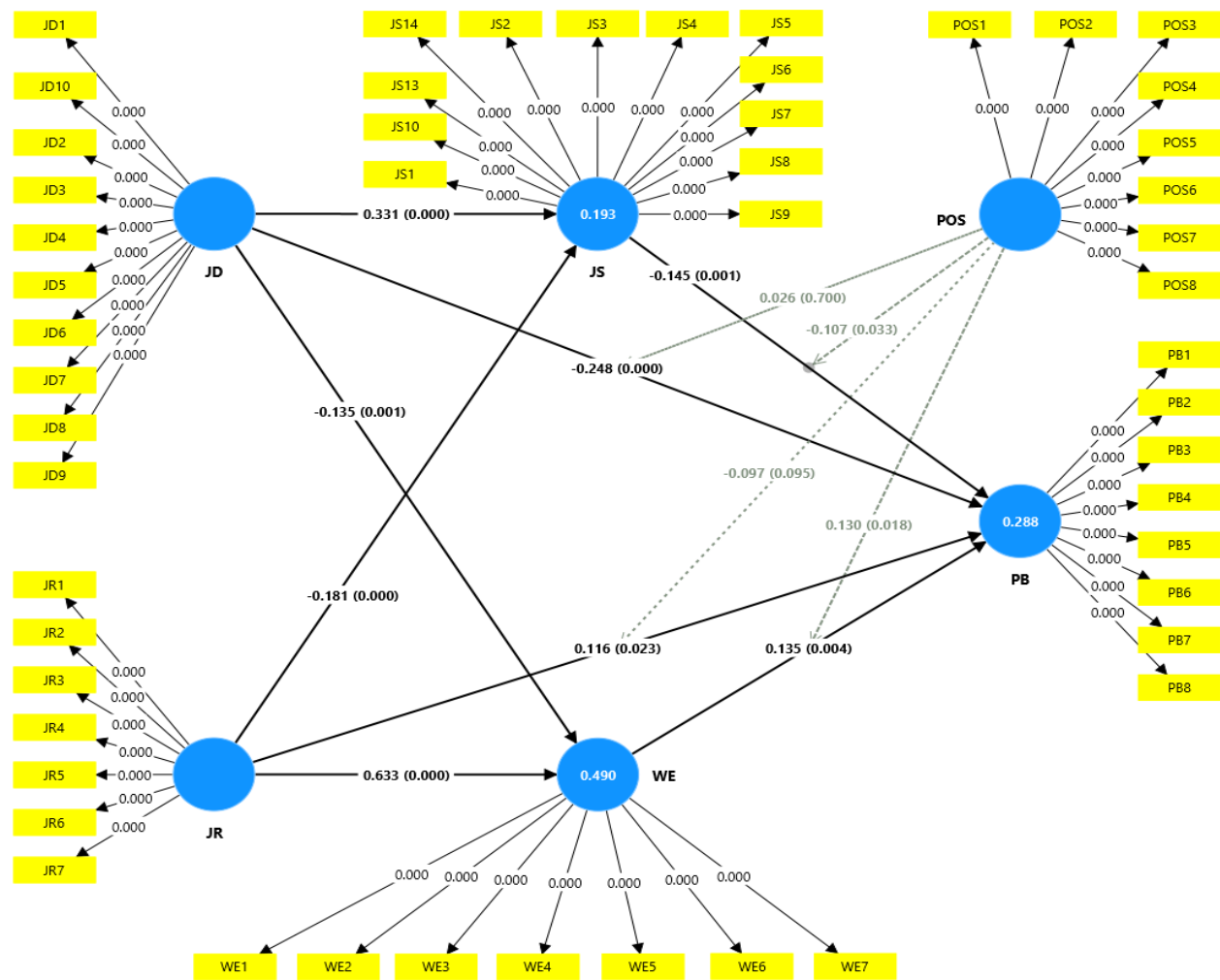
Structural Model Assessment

The structural model was then examined to test the hypothesized relationships between the latent constructs, following the establishment of the measurement model's validity and reliability.

Table 4: Structural Model

Hypotheses	Relationship	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P Values
H1	JD → PB	-0.248	-0.252	0.050	4.926	0.000
H2	JD → JS	0.331	0.335	0.051	6.535	0.000
H3	JD → WE	-0.135	-0.135	0.041	3.277	0.001
H4	JR → PB	0.116	0.114	0.051	2.280	0.023
H5	JR → JS	-0.181	-0.181	0.049	3.684	0.000
H6	JR → WE	0.633	0.632	0.046	13.902	0.000
H7	JS → PB	-0.145	-0.147	0.042	3.478	0.001
H8	WE → PB	0.135	0.137	0.047	2.844	0.004
H9	JD → JS → PB	-0.048	-0.049	0.015	3.120	0.002
H10	JD → WE → PB	-0.018	-0.018	0.009	2.099	0.036
H11	JR → JS → PB	0.026	0.027	0.011	2.406	0.016
H12	JR → WE → PB	0.085	0.087	0.032	2.703	0.007
H13a	POS x JD → PB	0.026	0.028	0.068	0.385	0.700
H13b	POS x JS → PB	-0.107	-0.107	0.050	2.138	0.033
H13c	POS x WE → PB	0.130	0.126	0.055	2.369	0.018
H13d	POS x JR → PB	-0.097	-0.091	0.058	1.670	0.095

The bootstrapping approach is employed to analyze the indirect effects. This method is a robust choice for studies with smaller sample sizes, as it does not assume a normal distribution within the underlying data. Figure 3 presents the path coefficient and P values.

Figure 3: Bootstrapping

Discussion

This study examines job characteristics and proactive work behavior as dual psychological mechanisms in Higher Education Institutions (HEIs) in Pakistan. This study provides important insights into how job strain and work engagement can impair health and undermine the motivation of university-employed teachers. It does so by studying both processes within a single framework and using perceived organizational support as a contextual moderator. The results strongly confirm the main claims of the Job Demands-Resources model but highlight some interesting contextual differences in Pakistan's higher education context.

The results show that Job Demands (JD) has a very strong negative relationship with Job Resources (JR) ($\beta = -0.431$; $p < 0.001$) and a strong positive effect on Job Strain (JS) ($\beta = 0.511$; $p < 0.001$). This means that when jobs become more difficult, people feel there are fewer alternative sources of support to cope with that stress. According to Zhang et al.'s (2021) research on hospitality workers, there is a similar negative link between available job resources and job-related anxiety. Today's work environments create situations in which job resources are particularly important, especially for employees facing increased demands. According to research by Molino et al. (2020),

employees managed job strain better due to guidance, contact with digital technologies, and supervisor support. Giving the right resources right after the environmental challenge protects people from harmful consequences. For example, teaching professionals working in high-demand settings experienced less tension and overload when they gained access to emotional and instrumental resources. But, they developed chronic stress symptoms in the absence of these resources (Molino et al., 2020).

Job resources (JR) correlate positively with work engagement (WE) ($\beta = 0.693$, $p < 0.001$), showing that job resources facilitate employee engagement at work. Job Strain (JS) was negatively related to Work Engagement (WE) ($\beta = -0.116$, $p = 0.021$), meaning higher strain reduces engagement level. Recent research findings support these theoretical views. A comprehensive study by Satwika et al. (2025) established how job demands determine PWB effects. The study shows positive results between challenge demands and PWB through engagement. It also reveals negative results between hindrance demands and PWB through strain. Mehmood et al. (2025) find that work engagement and PWB levels are likely to be higher in high-demand sectors, provided employees view their work demands as resources. This highlights that managers who want employees to act proactively should monitor work demands and build systems that boost engagement. Organizations that construct platforms with challenge-based demand structures and support for employee well-being will develop more engaged workers (Strauss et al., 2017).

The finding indicates that Job Strain (JS) is negatively associated with Proactive Behavior (PB), with a significant p-value of 0.013 and an effect size of $\beta = -0.248$. On the contrary, Work Engagement (WE) is positively associated with Proactive Behavior (PB) ($\beta = 0.179$, $p = 0.046$), which is to say that engaged employees are proactive in their actions. In a study by Schmitt et al. (2016), they examined how transformational leadership influences proactive work behaviors through work engagement and job strain. Results indicate that work engagement mediates the relationship between transformational leadership and proactive behaviors. Moreover, this relationship is significant only at low levels of job strain. High job strain appears to cancel out the beneficial effects of work resources on proactive worker behavior. As stated by Chanie et al. (2023), work characteristics influence proactive behavior through motivational states that serve as mediating factors. Researchers have established that work-related characteristics and proactive behavior outcomes are partially mediated by motivational states.

The mediation roles of job strain and work engagement offer the most nuanced picture of the underlying psychological mechanisms causing these relationships. The findings reveal that both constructs act as partial mediators in the relationship between job characteristics and proactive behavior. Job demands lessen proactive behavior in two ways. First, job demands reduce the cognitive resources required for impulsive behavior. Second, it increases job strain and negatively affects work engagement. Job resources encourage proactive behavior both directly and indirectly. They provide assistance that encourages action. They indirectly reduce strain. More importantly, they boost work engagement, which has a greater impact. This pattern of dual mediation reveals that the health deterioration system and motivational system complement each other. Together, they offer a more comprehensive explanatory framework for how workplace features translate into employee conduct.

The investigation into perceived organizational support revealed that it was conditionally important in the model proposed. Perceived Organizational Support (POS) has a significantly positive impact on Proactive Behavior (PB) ($\beta = 0.218$, $p < 0.001$). This means that organizational support is responsible for encouraging proactive behavior in the workplace. But the level of moderation by POS on some paths seems weak and, in certain cases, non-significant, as indicated

by high p-values. Employers wishing to facilitate job crafting could provide their employees with sufficient job resources and opportunities to optimize their employment conditions (Van Wingerden & Poell, 2019). Positive organizational support improves staff psychological empowerment and motivation, and makes employees more proactive. Research shows that perceived organizational support (POS) increases employees' autonomy, competence, and relatedness, which are necessary for proactive behavior. When organizations support us in the workplace, we are motivated to take action, suggest improvements, and go above and beyond our job. In the JD-R model, POS moderates the effects of job demands and resources on employee performance outcomes. Workers experience less job-demand-related negativity and more job-resource-related positivity in an organizational culture supportive of workplace health and well-being. Organizational culture is linked to increased work engagement and proactive behavior, they claim. Organizations can boost employee performance and well-being by treating POS improvement as a strategic priority. (Li & Yang, 2023)

Theoretical implications of these findings are substantial. This research extends the JD-R model by simultaneously testing both psychological pathways within a single framework in a non-Western developing country. The results of the study back up the model across cultures, but show that impairment-health is the main pathway in poorer countries. The effects of mediation imply that some models require measuring both direct and indirect effects of job characteristics on employees. Further, the nuanced moderating role of POS extends knowledge of boundary conditions in the JD-R model, suggesting that organizational support is a strength factor that influences the expression of psychological states, not their formation.

These findings provide practical guidance for higher education administrators in Pakistan and similar contexts. Because job resources can strongly influence people's work engagement, interventions that enrich job resources (for example, greater autonomy, stronger supervisory support, and professional growth opportunities) would be fruitful for increasing faculty motivation and initiative. While managing excessive demands is important, it suggests that the pathway through resources is relatively stronger. Resource-based strategies may offer better leverage for enhancing proactive behavior. Moreover, when organizations foster a perception of organizational support through fair policies, recognition systems, and concern for employees, the negative impact of strain can be prevented, and the positive impact of engagement can be enhanced.

In short, this study shows how various job features, mental states, and outside factors can help people and organizations be more proactive. The findings suggest that detachment demands and enabling resources help build engaged and proactive academics, as well as build capacities. Organizational support is important for establishing policies, institutional practices, and leadership practices that enable faculty to flourish under constraints. Further studies may use longitudinal designs to test for causation and examine other personal and contextual factors relevant to these dynamic processes.

Conclusion

This study's findings strongly support and give nuanced evidence for the Job Demands-Resources (JD-R) framework in the context of Pakistani higher education. There are two paths that the mind can take. The evidence for the impairing health process shows that high job demands enable job strain, which depletes the psychological energy required for work engagement and proactive work behavior. At the same time, the motivational process is strongly demonstrated, suggesting that job resources have a direct positive effect on proactivity and a stronger indirect effect on short- and long-term outcomes through work engagement and job strain. One key finding of this work is the

role of Perceived Organizational Support (POS), which serves as an important buffer. The connection between strain and proactivity weakens as we move away from a low point of support, while the relationship between engagement and proactivity strengthens. In particular, we find that POS is an important situational resource that shapes how psychological states translate into behavior. The research findings highlight the importance of faculty achievement to the university's business strategy. It is good not only to manage hindering job demands in a way that will not lead to resource depletion. It is also good to systematically invest in job resources and create a supportive climate that energizes the motivational process. This is important for sustainable employee well-being and organizational functioning.

There were several limitations of this research study. The first of all time constraints elements. The researcher had limited time to conduct this empirical research. Secondly, the researcher has limited resources for data collection to cover all HEIs of Pakistan. The study had limited resources for collecting data from the faculty of public and private HEIs in Punjab, Sindh, KPK, and Balochistan. Secondly, for this research study, the researcher collected cross-sectional data using convenience sampling from those faculty members who were easily accessible. In the future, researchers can use different sampling techniques because it was not possible to cover a large population. Thirdly, in the future, researchers can use these proposed models with different variables, like Artificial Intelligence, burnout dimensions, organizational commitment dimensions, and different leadership styles.

References

- Ahola, K., Toppinen-Tanner, S., Huuhtanen, P., Koskinen, A., & Väänänen, A. (2005). Occupational burnout and chronic work disability: An eight-year cohort study on pensioning among Finnish forest industry workers. *Journal of Affective Disorders*, 89(1–3), 17–25. <https://doi.org/10.1016/j.jad.2005.08.003>
- Ahyat, N., & Hamdi, N. (2024). The influence of teamwork and supervisor support on employee engagement in high-stress professions. *International Journal of Human Resource Studies*, 14(1).
- Bai, J., Wang, H., & Wang, S. (2022). Job resources, work engagement, and proactive customer service behavior: Evidence from the retail banking industry. *Journal of Service Management*, 33(2), 233–256. <https://doi.org/10.1108/JOSM-06-2021-0201>
- Bakker, A. B., & Demerouti, E. (2007). The Job Demands–Resources model: State of the art. *Journal of Managerial Psychology*, 22(3), 309–328.
- Bakker, A. B., & Demerouti, E. (2016). Job demands–resources theory: Taking stock and looking forward. *Journal of Occupational Health Psychology*, 22(3), 273–285.
- Bakker, A. B., & Demerouti, E. (2017). Job demands–resources theory: Review and extension. *Annual Review of Organizational Psychology and Organizational Behavior*, 4, 379–406.
- Bakker, A. B., Demerouti, E., & Sanz-Vergel, A. I. (2012). Burnout and work engagement: The JD–R approach. *Annual Review of Organizational Psychology and Organizational Behavior*, 1(1), 389–411.
- Boudrias, J. S., Desrumaux, P., Gaudreau, P., Nelson, K., Brunet, L., & Savoie, A. (2010). Modeling the experience of work engagement. *Journal of Vocational Behavior*, 76(3), 465–479.
- Caesens, G., Stinglhamber, F., & Ohana, M. (2021). Perceived organizational support and work engagement: The role of job characteristics. *Journal of Managerial Psychology*, 36(1), 4–17.
- Campbell, N. S., Perry, S. J., Maertz, C. P., Allen, D. G., & Griffeth, R. W. (2013). All you need is... resources: The effects of justice and supportive communication on job performance and well-being. *Journal of Organizational Behavior*, 34(1), 92–110.
- Chen, Y. (2024). Home resources as moderators of the relationship between job demands and work engagement. *Journal of Occupational Health Psychology*, 29(2), 143–159.
- Cotel, A., Golu, F., & Zaharie, M. (2021). Psychological resources and work engagement: The moderating role of organizational context. *Journal of Managerial Psychology*, 36(7), 561–576.

- Crant, J. M. (2000). Proactive behavior in organizations. *Journal of Management*, 26(3), 435–462.
- De Clercq, D., & Pereira, R. (2023). Learning opportunities and coworker support: Boosting engagement in hospitality employees. *International Journal of Hospitality Management*, 102, 103176.
- Demerouti, E., & Bakker, A. B. (2023). Job demands–resources theory: State of the art and future directions. *Journal of Occupational Health Psychology*, 28(1), 1–16.
- Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The Job Demands–Resources model of burnout. *Journal of Applied Psychology*, 86(3), 499–512.
- Duan, J., Tang, T., & Liu, Y. (2024). Job resources and work engagement: The mediating role of psychological empowerment. *Personnel Review*, 53(1), 34–53.
- Eisenberger, R., Huntington, R., Hutchison, S., & Sowa, D. (1986). Perceived organizational support. *Journal of Applied Psychology*, 71(3), 500–507.
- Fan, W., Zhang, J., & Wang, Y. (2022). Perceived organizational support and employee performance: The mediating role of work engagement. *Social Behavior and Personality*, 50(4), e11354.
- Ghanayem, A., Elhoushy, S., & Mohamed, S. (2020). Job resources and occupational strain: Evidence from healthcare settings. *International Journal of Workplace Health Management*, 13(5), 509–524.
- Hakonen, J. J., & Schaufeli, W. B. (2012). Do burnout and work engagement predict depressive symptoms and life satisfaction? *Journal of Affective Disorders*, 141(2–3), 415–424.
- Han, G., Harms, P., & Bai, Y. (2020). How leaders shape followers' proactive behavior: The role of motivational processes and job characteristics. *Journal of Organizational Behavior*, 41(8), 663–683.
- Islam, T., & Ajmal, M. M. (2024). Proactive personality, work engagement, and innovative work behavior: Evidence from the public sector. *Public Organization Review*, 24(1), 15–32.
- Jankelová, N., Joniaková, Z., & Procházková, K. (2021). Perceived organizational support, job satisfaction, and performance: The mediating role of work engagement. *Central European Journal of Management*, 8(1), 1–13.
- Karanika-Murray, M., Duncan, N., Pontes, H., & Griffiths, M. (2015). Organizational identification, work engagement, and job satisfaction. *Journal of Managerial Psychology*, 30(8), 1019–1033.
- Kasemy, Z. A., Bahgat, R. S., & Aboelazm, H. M. (2022). Emotional intelligence and social support in managing job demands: A protective role against strain. *BMC Public Health*, 22(1), 1728.
- Koopmans, L., Bernaards, C. M., Hildebrandt, V. H., Schaufeli, W. B., de Vet, H. C., & van der Beek, A. J. (2014). Conceptual frameworks of individual work performance. *Journal of Occupational and Environmental Medicine*, 56(3), 331–337.
- Kumar, S., Gupta, A., & Singh, R. (2023). Job resources and employee engagement in the Indian IT sector. *South Asian Journal of Human Resources Management*, 10(1), 75–95.
- Li, X., & Yang, Y. (2023). Perceived organizational support and proactive behavior: The mediating role of work engagement. *Journal of Business Research*, 158, 113692.
- Lorente, L., Vera, M., & Martínez, I. M. (2021). Job demands and resources during COVID-19: A longitudinal study of nurses' burnout. *Journal of Nursing Management*, 29(7), 2052–2064.
- Maan, A. T., Abid, G., Butt, T. H., Ashfaq, F., & Ahmed, S. (2020). Perceived organizational support and proactive behavior: The mediating role of thriving at work. *Frontiers in Psychology*, 11, 1562.
- Maden-Eyiusta, C. (2016). Developmental job resources and proactive behavior: The mediating role of work engagement. *International Journal of Human Resource Management*, 27(15), 1711–1736.
- Martinez, I. M., Pinto, A. M., Salanova, M., & Miguel, P. (2020). Job resources and job strain in healthcare professionals: A multi-sample study. *International Journal of Stress Management*, 27(1), 47–57.
- Mehmood, Q., Rehman, A., & Khan, M. A. (2025). Job demands, work engagement, and proactive work behavior: The mediating role of job strain. *Journal of Organizational Behavior*, 46(2), 251–270.
- Molino, M., Cortese, C. G., & Ghislieri, C. (2020). The role of job resources and demands during COVID-19 among teachers. *Frontiers in Psychology*, 11, 584.
- Parker, S. K., Bindl, U. K., & Strauss, K. (2010). Making things happen: A model of proactive motivation. *Journal of Management*, 36(4), 827–856.

- Permata, N., & Mangundjaya, W. (2021). The mediating role of work engagement in the relationship between job autonomy and proactive behavior. *Gadjah Mada International Journal of Business*, 23(2), 135–153.
- Quinn, R. W., & Dutton, J. E. (2005). Coordination as energy-in-conversation: A process theory of organizing. *Academy of Management Review*, 30(1), 36–57.
- Salanova, M., & Schaufeli, W. B. (2008). A cross-national study of work engagement as a mediator between job resources and proactive behavior. *International Journal of Human Resource Management*, 19(1), 116–131.
- Satwika, I. P., Hendriani, W., & Rahmawati, N. (2025). Challenge and hindrance job demands: Their differential effects on proactive work behavior. *Asia Pacific Journal of Management*, 42(1), 145–172.
- Schaufeli, W. B. (2021). Engaging leadership and work engagement: The JD–R model approach. *Career Development International*, 26(3), 348–364.
- Schaufeli, W. B., Bakker, A. B., & Salanova, M. (2006). The measurement of work engagement with a short questionnaire. *Educational and Psychological Measurement*, 66(4), 701–716.
- Schmitt, A., Den Hartog, D. N., & Belschak, F. D. (2016). Transformational leadership and proactive work behavior: The role of work engagement and job strain. *Leadership Quarterly*, 27(1), 1–13.
- Slep, G. R., Vella-Brodick, D. A., & Levesque-Bristol, C. (2015). Optimizing employee mental health: The role of intrinsic need satisfaction and job crafting. *Journal of Happiness Studies*, 16(4), 1149–1171.
- Sonnentag, S., & Niessen, C. (2020). The recovery paradox: Prolonged job strain impairs daily recovery and proactive behavior. *Journal of Occupational Health Psychology*, 25(5), 336–348.
- Strauss, K., Griffin, M. A., & Parker, S. K. (2017). Future work selves: How salient hoped-for identities motivate proactive career behaviors. *Journal of Applied Psychology*, 97(3), 580–598.
- Taris, T. W., Leisink, P. L., & Schreurs, B. H. (2010). Discrepancies between work characteristics and outcomes. *Journal of Vocational Behavior*, 77(2), 329–340.
- Tims, M., Bakker, A. B., & Derks, D. (2016). Job crafting and its relationships with person–job fit and meaningfulness: A three-wave study. *Journal of Vocational Behavior*, 92, 44–53.
- Van Heerden, M., Barkhuizen, N., & Coetzee, M. (2022). Work engagement in turbulent times: Balancing demands and resources. *SA Journal of Industrial Psychology*, 48, a1975.
- Van Wingerden, J., & Poell, R. F. (2019). Meaningful work and job crafting: The role of human resource development. *Human Resource Development International*, 22(4), 364–384.
- Version, M. (2024). Quantitative workload and employee engagement: A study in the nursing profession. *Nursing Management*, 31(2), 24–32.
- Wall, T. D., Jackson, P. R., Mullarkey, S., & Parker, S. K. (1996). The demands–control model of job strain: A more specific test. *Journal of Occupational and Organizational Psychology*, 69(2), 153–166.
- Wrzesniewski, A., & Dutton, J. E. (2001). Crafting a job: Revisioning employees as active crafters of their work. *Academy of Management Review*, 26(2), 179–201.
- Yao, X., Wang, F., & Chen, H. (2022). Job autonomy, professional growth opportunities, and stress reduction: The role of resilience. *International Journal of Stress Management*, 29(2), 172–187.
- Zacher, H., & Winter, G. (2011). Eldercare demands, strain, and work engagement: The moderating role of perceived organizational support. *Journal of Vocational Behavior*, 79(3), 667–680.
- Zahoor, N. (2020). Job resources, engagement, and service recovery performance: The moderating role of proactive personality. *Service Industries Journal*, 40(9–10), 643–663.
- Zhang, Y., Xu, S., Jin, J., & Ford, M. T. (2021). The job demands–resources model: An updated review. *Journal of Occupational Health Psychology*, 26(2), 178–200.