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From Blaming the Job to Self-Reflection: The Role of Personal Demands in Triggering the Health-Impairment Process of the Job Demands-Resources Theory

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Keywords: Personal Demands, Job Demands, Emotional Exhaustion, Job Performance, Health-Impairment, JD-R Theory.

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This study examines the role of personal demands in the health-impairment process of the Job Demands-Resources (JD-R) theory. Personal demands, such as workaholism, self-criticism, and awfulizing, are internal pressures and maladaptive striving. Job demands such as cognitive, quantitative, and learning demands mediate the association between personal demands and emotional exhaustion. Emotional exhaustion mediates the relationship between job demands and job performance, as measured at both the task and contextual levels. Data from 387 software developers support the serial mediation model, finding that high personal demands increase job demands, which in turn lead to emotional exhaustion. This emotional exhaustion negatively impacts performance. The results demonstrate that job demands and emotional exhaustion mediate the relationship between personal demands and performance in a unique sequence. This study extends JD-R theory by establishing the link between internal pressures and work strain, with implications for personal and organizational management.

Keywords: Personal Demands, Job Demands, Emotional Exhaustion, Job Performance, Health-Impairment, JD-R Theory

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Contents

Introduction & Background

Software developers are regularly subjected to challenging and variable working conditions, with developers often having to switch contexts, absorb new coding knowledge, and fix long-running bugs. These issues are not merely anecdotal, as shown by many empirical studies that cognitive load and interruptions have measurable costs in terms of code quality or developer stress (Abad et al., 2018; Bakker & Demerouti, 2007; Demerouti et al., 2001). There is a significant difference between physically demanding and knowledge-intensive occupations in the type of

demands; knowledge work demands are mainly time-related, involve an ongoing need for learning, and require sustained focus. These demands are particularly stressful because they drain finite cognitive resources, complicate recovery, and increase exhaustion in the health-impairment pathway of the JD-R model (Lesener, Gusy, & Wolter, 2019; Schaufeli & Taris, 2014; Bakker & Demerouti, 2017).

However, strain is not experienced only from external pressures. Individuals bring cognitive and behavioral patterns to the workplace, and these patterns can either buffer or magnify the impact of external demands. The personal demands refer to self-imposed demands like overwork, perfectionism, or catastrophic thinking (Barbier, Hansez, Chmiel, & Demerouti, 2013; Zeijen, Brenninkmeijer, Peeters, & Mastenbroek, 2021). These psychological demands are not stable personality traits but rather dynamic, transient patterns of thought, emotion, and behavior that deplete rather than restore resources (Xanthopoulou et al., 2007; Mastenbroek et al., 2014). Thus, two employees with the same external workloads may experience these pressures differently, depending on their internal pressures.

The reason for conceptualizing personal demands as a predecessor condition for strain is intuitive. For example, compulsive work results in longer hours spent at work and self-imposed tasks, thus increasing the perceived workload. Likewise, catastrophic interpretations of minor errors increase cognitive overload by increasing vigilance and rumination. This view is confirmed by empirical research where there is an overlap between workaholism and overcommitment on the one hand and higher perceived demands and higher levels of burnout on the other (Guglielmi, Simbula, Schaufeli, & Depolo, 2012; Schaufeli et al., 2009; Barbier et al., 2013). It has been demonstrated that irrational beliefs predicted higher perceptions of academic demands (Zeijen et al., 2021) and higher exhaustion (Zeijen et al., 2021), which indicates that such dynamics can also be expected to play a role in the workplace (Zeijen et al., 2021; Mastenbroek et al., 2014).

The JD-R framework provides a valuable framework for conceptualizing these dynamics. It describes motivational and health-impairment pathways, which assume that demands drain resources while resources promote growth (Demerouti et al., 2001; Bakker & Demerouti, 2017). However, the contribution of subjective non-job-related demands as a precursor and magnifier of objective job-related demands is under-researched. If personal demands are in fact an upstream influence, the effectiveness of interventions based solely on job redesign might be limited unless intrinsic sources of control (e.g., overinvestment, catastrophic appraisal) are also targeted (Lesener et al., 2019; Schaufeli & Taris, 2014; Bakker et al., 2005).

In software and ICT companies, the significance of personal demands is even more intense. Cognitive and learning demands are inherent in the work: knowledge work by nature is a continuous learning process, as platforms and tools are constantly changing. In other words, developers' cognitive load and wasted time caused by overlearning, resistance to delegation, and ruminating are risk factors that exacerbate uncertainty and stress (Abad et al., 2018; Tims & Demerouti, 2017; Bakker & Demerouti, 2007). This exacerbates emotional exhaustion, which can adversely affect task performance as well as contextual behaviours that are instrumental to keeping the team productive (Bakker et al., 2005; Schaufeli & Taris, 2014; Zeijen et al., 2021).

While this argument seems valid, it begs the question of conceptual overlap between personal demands and constructs such as perfectionism or neuroticism. Hence, the differentiation between short-lived self-regulatory tendencies and stable personality features is important to measure individual demands (Xanthopoulou et al., 2007; Mastenbroek et al., 2014). This differentiation does not lack practical consequences: job redesign or resource augmentation are not sufficient to avoid the necessity of cognitive-behavioral interventions for maladaptive patterns such as awfulizing or overcommitment. Emerging empirical research has confirmed the idea that personal demands are dynamic and malleable patterns that interact with job demands to predict exhaustion and performance (Barbier et al., 2013; Zeijen et al., 2021; Guglielmi et al., 2012).

Thus, it is plausible to think also of personal demands as triggers of the health-impairment process; this is especially true in the case of organizations where the system of internal standards and external pressures overlaps. Such an extension of the JD-R framework would be theoretically justified and practically useful. It further begs several empirical questions: To what degree is there a temporal priority of personal demands over job demands? What are the most important personal demands for ICT work? Which combination(s) of organizational and individual interventions would most improve well-being and performance? Answering these questions would help to further develop the JD-R framework and provide organizations with practical knowledge in order to balance high performance and employee

well-being (Bakker & Demerouti, 2017; Lesener et al., 2019; Zeijen et al., 2021).

Literature Review and Hypotheses Development

The Job Demands-Resources (JD-R) theory has become a key theory for understanding the employees' well-being and performance in the context of organizations (Bakker & Demerouti, 2007; Schaufeli & Taris, 2014). The model distinguishes between two interrelated psychological processes, namely the health impairment process and the motivational process. Of particular pertinence to the present study is the health impairment process, which explains how excessive job demands result in energy exhaustion, culminating in emotional exhaustion and attenuated performance (Bakker & Demerouti, 2017). Nevertheless, the research efforts are so far limited in their scholarly attention concerning the role of personal demands on the start-up of this impairment process before the influence of external stressors (Bakker & de Vries, 2021). While previous versions of JD-R theory accepted the existence of personal characteristics, it has only been in the last few years that researchers have sought to describe their role as antecedents of strain (van den Broeck et al., 2022).

Personal demands are conceptualized as internalized tendencies that force individuals to exert excessive efforts, even at the cost of recovering or feeling well (Bakker & de Vries, 2021). In contrast to personal resources, which act as buffers against stress and sources of motivation (Xanthopoulou et al., 2007), personal demands are "internal pressures that not only increase job demands but can also turn neutral job characteristics into stressors (Gordon et al., 2022). The paradigm shift emphasizes the fact that work stress does not passively affect employees, but employees are active participants in the work stress process whose cognitive and emotional patterns soften the process of stress (Bakker, 2022; Schaufeli, 2017). As an example, the perfectionistic software engineer may attribute little (or micro) project delays as individual failures, thereby escalating the cognitive and affective requirements (Taris et al., 2010).

We have identified three of the different kinds of personal demands present in the literature that appear to be of particular significance in knowledge-intensive, technology-intensive workplaces, including workaholism, self-criticism, and awfulizing. The results of health impairment have long been associated with workaholism or the inability to control the urge to overwork based on the JD-R model (Schaufeli, Taris, & Bakker, 2008). Workaholic employees can also develop other work-related demands, which include overcommitment, lack of uncoupling-work-related factors, and emotional overinvolvement (Shimazu et al., 2015; Clark et al., 2016). Self-criticism is also a style that is marked by strong self-assessments and contributes to the sense of failure and emotional tension (Dunkley et al., 2017). Awfulizing, which is the catastrophizing habit in normal failures, causes people to view situations as being worse than they are (Ellis, 2003). These individual needs distort appraisals of cognition and contribute to perceptions of job-related stressors in the absence of increased workload (van Wingerden & Poell, 2019). In this regard, personal demands may be seen as a cognitive-emotional prism that amplifies job demands and accelerates a shift between work demands and work exhaustion as stated in the JD-R theory.

To some extent, the personal and job demands have a dynamic relationship. Bakker and Demerouti (2014) argued that job demands may not be harmful to an individual; however, they become troublesome when an individual is required to engage in prolonged psychological or physical effort without the required rest. Neutral job characteristics can be converted into stressors through personal demands such as workaholism or self-criticism (Bakker & de Vries, 2021). This position is supported by the empirical evidence that indicates that even when the workload is not increased, workaholic workers are exposed to and display more cognitive and quantitative demands (Shimazu & Schaufeli, 2009). Similarly, high individual self-critical perfectionism employees indicate more emotional exhaustion during high demands in learning, indicating that personal pressures change with the complexity of the task. Such a reciprocity suggests that the predictive value of the personal demands on job demands is that they also define the subjective experience of job demands and contribute to the health impairment cycle.

In knowledge-based sectors such as software development, however, these dynamics take on a certain salience. Software engineers regularly encounter cognitive load, project uncertainty, and rapid technological change (Gonzalez & Mark, 2004). While cognitive and quantitative demands are inherent in the job, there is considerable personal tendency to determine how these pressures are perceived and handled. A developer with awfulizing behavior describes bugs that are commonplace as catastrophic, which turns typical difficulties into significant stressors (Aranda et al., 2019). Similarly, workaholism can also lead to overworking during project "sprints", which causes chronic fatigue and

emotional exhaustion (Salanova et al., 2014). Personal demands, therefore, work as catalysts within the health impairment process, which means that the emotional load of job demands is magnified.

Job demands themselves are the second important aspect of the JD-R framework. These demands, whether physical, psychological, or social in nature, require a sustained effort that produces physiological and psychological costs (Demerouti et al., 2001). Job demands are commonly classified into emotional, cognitive, and quantitative dimensions, which reflect the multi-dimensional nature of the pressures that employees face in modern-day organisations (Bakker & Demerouti, 2017). For software professionals, cognitive demands are related to problem-solving and persistent learning; quantitative demands are related to time pressure and workload intensity; and emotional demands are associated with interpersonal stress in the team and with clients (Sonnentag et al., 2010). When such demands become too high without adequate recovery, they lead to emotional exhaustion, which is the core constituent of burnout (Maslach & Leiter, 2016). Research has consistently shown that job demands are a good predictor of emotional exhaustion in numerous occupational groups (Alarcon, 2011).

Emotional exhaustion mediates the link between job demands and performance results. In the JD-R theory, the core affect in the health impairment process is exhaustion (Bakker & Demerouti, 2017). It exhausts psychological resources and reduces cognitive engagement, which hampers dysfunction in both the performance of tasks and interpersonal functioning (Halbesleben & Bowler, 2007). Studies conducted within the knowledge work environments show that emotional exhaustion erodes creativity, adaptability, and contextual behaviours such as collaborating (LePine et al., 2016). This seems to indicate that exhaustion is not simply a result of external job stress, but also a result of self-imposed overextension. Hence, when one's demands are personal in nature, personal demand starts the cycle of personal depletion, when emotional exhaustion serves as an outcome and feedback of maladaptive demanding (Bakker and de Vries, 2021). This subtle distinction places the internal dynamics of the person with psychosis at the heart of the JD-R theory's health impairment pathway.

Hypotheses Development

A key assumption in JD-R theory is that employee health and performance are formed by the balance between job demands and resources (Bakker & Demerouti, 2007; Schaufeli & Taris, 2014). Traditionally, the framework has focused on the negative effects of job demands on energy depletion and the development of strain, and the positive effects of job resources on motivation. Recent empirical research has brought personal demands into focus as antecedents that can set the trajectory of health impairment in motion or exacerbate the impacts of environmental demands before these set in (Bakker & Demerouti, 2017; Barbier et al, 2013; van den Broeck et al., 2014). Consequently, personal demands are established as the origin of the buildup of strain, providing a more refined psychological description for why certain employees become exhausted in ostensibly similar occupational conditions.

The relationship between Personal Demands and Job Demands

Personal demands are self-generated stressors consuming cognitive and emotional resources, therefore undermining adaptive functioning (Bakker, Demerouti, & Sanz-Vergel, 2023). Even though each possesses a different operational definition, such traits as workaholism, self-criticism, and awfulizing converge on the common mechanism of internalized pressure and rumination that is used to increase the intensity of perceived external demands (Clark et al., 2021; Schaufeli et al., 2008). These propensities are especially applicable in the context of deadlines, cognitive overload, and accuracy that is always inherent in the profession when it comes to software development. Workaholism or self-criticism distracts employees and might lead them to a situation where they perceive their seemingly routine work or other work as urgent and/or personally significant and therefore amplify their perceptions of the job demands (Shimizu et al., 2015). This is an enhancement of the concept of "self" that is in tandem with the JD-R theory, according to which personal characteristics moderate the appraisal and handling of job pressures (Xanthopoulou et al., 2007). Accordingly, we hypothesize that personal demands verge on perceived job demands and thereby underscore the incipient strain pathway.

Hypothesis 1: Personal demands in terms of workaholism, self-criticism, and awfulizing have a positive relationship with job demands that include cognitive, quantitative, and learning demands.

Direct and Mediating Effect of Job Demands

Sustained exposure to job demands is related to the development of emotional exhaustion (Bakker et al., 2003). Emotional exhaustion refers to the depletion of emotional and physical resources and often

represents the very first indicator of burnout (Maslach & Leiter, 2016). The JD-R theory explains the fact that emotional exhaustion comes about when demands of the job overwhelm an employee's ability to recover and hence foments fatigue and withdrawal (Bakker & Demerouti, 2017). Empirical studies in a wide range of occupational settings have repeatedly highlighted cognitive and quantitative loads as powerful predictors of emotional exhaustion and, especially, as such when the possibility for recovery is limited (Demerouti et al., 2001; van Woerkom et al., 2016). Within software development, there is the constant need for problem-solving, debugging, and meeting tight deadlines, which contribute to cognitive saturation. When compounded by individual demands creating perfectionistic striving, the path to exhaustion is hastened (Clark et al., 2021).

Hypothesis 2: Job demands act as a mediator in the relationship between personal demands and emotional exhaustion.

Direct and Mediating Effect of Emotional Exhaustion

The job demands take their toll on performance outcomes through the mediator of emotional exhaustion, which absorbs the resources of cognitive and emotional capacity to be able to function effectively in the occupation (Taris, 2006). The tired workers experience cognitive fatigue and lack of control and concentration of feelings, which affect the performance, including the task performance (Bakker & Costa, 2014). Sustained attention and collaborative engagement are critical in knowledge-based situations, where the work may be in the form of software development. In the event of emotional exhaustion, these competencies are impaired and cause mistakes, an increase in the rate at which codes are delivered, and less team collaboration (Sonnentag et al., 2010). These results confirm the hypothesis that exhaustion is the mediating factor that exists between job demands and performance (Bakker et al., 2004; Crawford et al., 2010).

Hypothesis 3: Emotional exhaustion has a negative association with job performance (both in terms of task and contextual performance)

Serial Mediation of Job Demands and Emotional Exhaustion

With a combination of these empirical relationships, We postulate a cascading chain of health impairment in such a way that, as personal demands escalate, perceived job demands also increase, which in turn result in emotional exhaustion and subsequent performance impairment. The interaction between individual weaknesses and environmental forces to weaken functioning over time is a good illustration of the recursive structure of the JD-R framework (Bakker & Demerouti, 2017). Such a causal chain is supported by longitudinal studies that indicate that workaholism and self-critical perfectionism are related to subsequent exhaustion and reduced productivity in the event of further excessive effort (Flett & Hewitt, 2016; Shimazu et al., 2015).

Hypothesis 4: Job demands and emotional exhaustion serially mediate the relationship between personal demands and job performance.

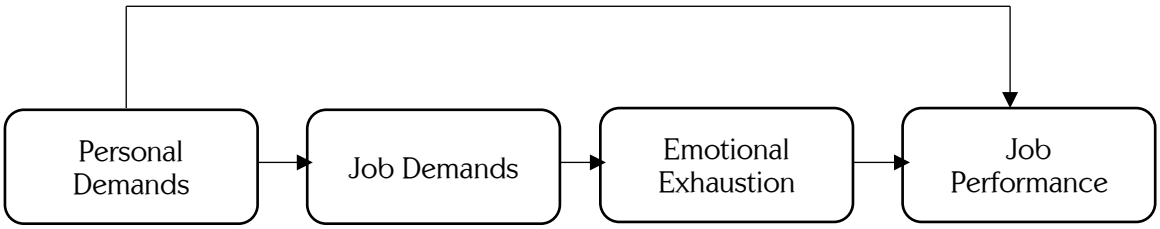
Conceptual Framework

The sequential process proposed in this paper is the one in which the personal demands are related to job performance via job demands and emotional exhaustion. Personal demands, a higher-order construct that entails workaholism, self-criticism, and awfulizing, are hypothesized to positively influence workers experiencing work demands. Such further requirements, in their turn, result in emotional exhaustion, which results in diminishing task and contextual performance. The model has a cascading mechanism that involves interaction of internal psychological pressures and perception of demands in the environment, culminating in emotional depletion and performance reduction.

The job demands as well as emotional exhaustion are both serial mediators in such a system, therefore, demonstrating the transformation of internal stress orientation into external strain and behavior. The conceptual frame is a consistent account of the process of health-impairment within the JD-R model in that it identifies personal demands as the origin of strain-accumulation and the cognitive-emotional links through which personal and organizational determinants of strain are connected. In this way, the framework connects intrapersonal psychology and conditions of the workplace, which offers a dynamic perspective of the impact of internal states of employees on their performance patterns in a challenging professional setting as software development.

Figure 1

Conceptual Model of the study (Source: Authors' own work)



Materials and Methods

Research Design

The current study used a quantitative, cross-sectional survey research approach to investigate the structural relationships proposed in an extended Job Demands-Resources (JD-R) theory (Anderson & Gerbing, 1988; Kline, 2016). Structural equation modeling (SEM) has been employed using AMOS version 26 to estimate both measurement and structural parameters simultaneously while controlling for measurement error and indirect effects (Byrne, 2016; Hair et al., 2019). This design allowed the modeling of the second-order constructs for personal and job demands, and the measurement of serial mediation was made possible with bootstrapped confidence intervals, following current SEM procedures (Hayes, 2013; Bollen & Stine, 1990).

Sampling and Participants

The target population consisted of full-time software professionals working at reputed software houses in Pakistan. Recruitment of these professionals was carried out in partnership with human resource departments and associations with industry to ensure a representative sample of developers, software engineers, and project managers working in cognitively demanding and deadline-pressured working environments (Shimazu et al. 2015; Bakker & Costa 2014). A purposive sampling technique was adopted to ensure that the subjects had direct exposure to cognitive, quantitative, and learning demands inherent to the sector (Sekaran & Bougie, 2020). A total of 500 questionnaires were distributed; after screening for completeness and attention checks, the valid responses were retained as 387. Sample characteristics were similar to national statistics on IT employment, which suggested acceptable external validity in the target sector.

Measures

All instruments were based on existing multi-item scales and were administered on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Items were modified for the software development context for clarity and reviewed by expert stakeholders in the field to ensure content validity, using recommended procedures for scale modification (DeVellis, 2016).

Personal demands were conceptualized as a second-order construct that comprises three first-order factors. Workaholism was assessed using items from validated measures of compulsive work involvement and difficulty disengaging (Schauffeli et al., 2008; Spence & Robbins, 1992). Self-criticism was assessed by items measuring harsh self-evaluations and perfectionistic concerns (Flett & Hewitt, 2016). Awfulizing was measured using items about catastrophic appraisals of common setbacks and derived from previous research on demands on the self from the JD-R literature (Barbier et al., 2013; Zearien et al., 2021). Cronbach's alpha coefficients for these subscales were 0.81 to 0.89, demonstrating satisfactory internal consistency results of the pilot test.

Operationalization of job demands was viewed as a second-order job demand concept, which includes cognitive, quantitative, and learning demands. Cognitive demands were measured in terms of sustained concentration and problem-solving demands; quantitative demands implied workload intensity and time pressure; learning demands implied the need for continuous upskilling and adaptation and are consistent with JD-R operationalizations of knowledge-intensive work (Demerouti et al., 2001; Van den Broeck et al., 2010). Composite reliability of job demands was 0.86.

Emotional exhaustion was assessed through the emotional exhaustion subscale of the Maslach Burnout Inventory (Maslach & Leiter, 2016), modified to be appropriate for settings where cognitive strain was the main stressor. The scale showed high levels of reliability, with a Cronbach's alpha value of more than 0.90.

Job performance was conceptualized as a second-order construct as a function of task

performance and contextual performance. Task performance items were concerned with role-prescribed duties as well as the quality of outputs, while contextual performance items dealt with discretionary behaviours to support colleagues and the organization. Supervisory ratings were also collected, where possible, to complement self-reports and reduce the impact of the common method effect as recommended for measures of organizational behaviour (Conway & Lance, 2010; Williams & Anderson, 1991). Reliability for the combined performance measure was 0.88.

Procedure

Data collection was conducted in two waves to control common-method bias and also to control for possible temporal precedence as indicated in the theoretical model. In wave one, the study participants were asked to complete measures of personal and job demands. Three weeks later, in wave two, the measures of emotional exhaustion and job performance were administered to participants again. Participation was voluntary, and informed consent was obtained from all the participants. Respondents were assured of anonymity, and a preliminary pilot test with 35 software and IT professionals indicated item clarity and acceptable preliminary reliability estimates.

Data Preparing and Screening

Data screening followed standard procedures. Missing data were reduced and managed by the expectation maximization method. Multivariate outliers were detected using Mahalanobis distance criteria and deleted when required. The normality was checked using skewness and kurtosis statistics. Multicollinearity was assessed, and variance inflation factors were kept at acceptable levels. The maximum likelihood estimation in AMOS was applied to analyses to retain cases with limited missing data and extract efficient parameter estimates (Kline, 2016; Tabachnick & Fidell, 2019).

Measurement Model

Confirmatory factor analysis (CFA) was performed in AMOS to assess the measurement model. Second-order factors were specified for personal demands, job demands, and job performance. Model fit was evaluated by several different indices, including the chi-square divided by the degrees of freedom, comparative fit index (CFI), Tucker-Lewis index (TLI), root mean square error of approximation (RMSEA) and standardized root mean square residual (SRMR) as recommended in SEM related literature (Hu & Bentler, 1999; Hair et al., 2019). Convergent validity was assessed based on average variance extracted (AVE) and standardized loadings. Discriminant validity was tested using the Fornell-Larcker criterion, as well as tests of inter-construct correlations.

Structural Model and Hypothesis Testing

The structural model was estimated in AMOS, in which hypothesis testing was concentrated on the direct paths from personal demands to job demands, job demands to emotional exhaustion, and emotional exhaustion to job performance. A test of sequential mediation was conducted with bias-corrected bootstrap confidence intervals of 5000 resamples in AMOS. The importance of indirect effects was measured by testing whether zero was contained in the bootstrap confidence intervals. Standardized path coefficients and explained variance values were obtained to enable substantive interpretation, following the reporting standards for structural equation modeling (SEM) (Byrne, 2016).

Common Methods Bias and Robustness Check

To reduce common method bias, several procedural and analytical efforts were taken. The two-wave design was used to separate the measurement of predictors and criteria over time to minimize biases in prospective consistency. An initial Harman's single-factor exploratory factor analysis was undertaken, which did not show a dominant factor. Subsequently, a latent common method factor was included within the model created on the AMOS while conducting structural equation modeling to estimate possible method variance to ensure the robustness of substantive effects (Podsakoff et al., 2012) after accounting for the method-related influences. Sensitivity analyses were conducted by re-estimating the paths of the structures using other parcelling strategies, in this case, large sets of items, confirming that the basic paths maintained statistical significance.

Ethical Considerations

All ethical procedures were consistent with established professional standards for research conducted on human subjects. Participation was voluntary, and informed consent was obtained before administration of the questionnaire. Anonymity was ensured through not holding personally identifiable information in response files, and response files were stored on password-protected systems with access limited to the research team only. Participants were informed of their right to withdraw at any time if they

did not wish to continue. Potential risks were assessed as being minimal and linked mainly to the recall of stressful occupational experiences. Participants received information about available counselling resources and an optional debriefing session that included the available strategies for dealing with work-related stress. The ethical guidelines of professional psychology associations, such as those of the American Psychological Association (APA) and the Declaration of Helsinki, were followed in the study.

Data Analysis and Results:

Preliminary Analyses

Data analysis was conducted using the covariance-based structural equation modeling (CB-SEM) statistical program, AMOS (version 28). The first step was to validate the measurement model and then to test the structural model to investigate the hypothesised relations between the constructs. With a sample size of 387, the study met the required power criteria as well as parameter stability as outlined in Hair et al. (2019).

Prior to the estimation, a thorough data screening procedure was conducted. Missing data were found to be minimal, less than 3 percent per variable, and were treated using full information maximum likelihood estimation. Multivariate normality was assessed with Mardia's coefficient, which was within the acceptable range. Skewness and kurtosis were calculated within the value of +-2, indicating the data were closer to a normal distribution (Kline, 2016). Variance inflation factors ranged between 1.23 and 2.47, which indicates nothing to worry about regarding multicollinearity (Hair et al., 2019). Harman's single-factor test was also conducted and found that there was no dominant single factor, which confirmed that common method bias was not among salient concerns (Podsakoff et al., 2003).

Measurement Model Assessment

Confirmatory factor analysis (CFA) was performed to assess the measurement model, using both first-order and second-order latent constructs. The results showed that the model of measurement fit to the empirical data is satisfactory based on the following fit statistics results: chi2 (649) = 1421.7, x^2/df = 2.19, Comparative Fit Index (CFI) = 0.947, Tucker Lewis Index (TLI) = 0.937, Root Mean Square Error of Approximation (RMSEA) = 0.047 (90% confidence interval: 0.043-0.051) and Standardised Model Misfit Res All standardized factor loadings were greater than 0.60 and were statistically significant ($p < 0.001$) indicating evidence of convergent validity. Average variance extracted (AVE) values were all greater than 0.50, and composite reliabilities (CR) were all greater than 0.70 for each construct, thus meeting the criteria established by Fornell and Larcker (1981). Cronbach's alpha coefficients for the measures were 0.85-0.91, which is an excellent measure of internal consistency. Discriminant validity was confirmed by showing that the square root of the AVE of each construct was greater than the inter-construct correlations. Descriptive statistics, reliability coefficients, and intercorrelation matrices are presented in Table 1.

Table 1

Descriptive Statistics, Internal Reliabilities, and Inter-Construct Correlations (N = 387)

Construct	M	SD	α	1	2	3	4	5
1. Personal Demands	3.21	0.72	.89	—				
2. Job Demands	3.45	0.66	.86	.48**	—			
3. Emotional Exhaustion	2.98	0.81	.91	.44**	.52**	—		
4. Task Performance	3.72	0.58	.87	−.30**	−.35**	−.51**	—	
5. Contextual Performance	3.59	0.62	.85	−.28**	−.32**	−.47**	.60**	—

Note: p < .01, two-tailed.

Structural Model Testing

After confirming the measurement model, the hypothesized structural relationships were tested using SEM in AMOS. The results showed a good fit for the structural model: $\chi^2(655) = 1{,}474.9$, $\chi^2/df = 2.25$, CFI = .942, TLI = .934, RMSEA = .048 (90% CI [.044, .052]), and SRMR = .045. The model fit indices are summarized in Table 2.

Table 2

Model Fit Indices for the Structural Model (N = 387)

Fit Index	Recommended Threshold	Obtained Value	Interpretation
χ^2/df	< 3.00	2.25	Acceptable
CFI	≥ .90	.942	Good fit
TLI	≥ .90	.934	Good fit
RMSEA	≤ .08	.048	Close fit
SRMR	≤ .08	.045	Good fit

The results revealed significant relationships between the variables. Personal demands had a positive and significant effect on job demands (β = .45, p < .001). Job demands, in turn, positively predicted emotional exhaustion (β = .40, p < .001), while emotional exhaustion negatively impacted job performance (β = −.33, p < .001). The sequential indirect effect from personal demands to job performance through job demands and emotional exhaustion was statistically significant (β = −.059, 95% BC CI [−.082, −.039]), supporting the hypothesized mediation. Table 3 summarizes these structural path estimates and explained variances.

Table 3

Model Fit, Structural Path Estimates and Explained Variance (N = 387)

Analysis Type	Measurement	Value
Goodness-of-Fit Indices	Chi-Square (χ^2)	1,474.9 (df = 655)
	Chi-Square/df (χ^2/df)	2.25
	Comparative Fit Index (CFI)	0.942
	Tucker-Lewis Index (TLI)	0.934
	Root Mean Square Error of Approximation (RMSEA)	0.048 (90% CI [0.044, 0.052])
	Standardized Root Mean Square Residual (SRMR)	0.045
Direct Effects	Personal Demands → Job Demands	β = 0.45, SE = 0.05, p < 0.001
	Job Demands → Emotional Exhaustion.	β = 0.40, SE = 0.04, p < 0.001
	Emotional Exhaustion → Job Performance	β = −0.33, SE = 0.04, p < 0.001
Variance Explained	Job Demands	R^2 = 0.20
	Emotional Exhaustion	R^2 = 0.30
	Job Performance	R^2 = 0.28
Indirect Effects	Indirect Effect (β)	−0.059
	95% Bootstrap Confidence Interval (BC CI)	[−0.082, −0.039]
	Significance of Indirect Effect	Significant (p < 0.05)

Notes:

1. Goodness-of-Fit Indices: Key indices (χ^2, CFI, TLI, RMSEA, and SRMR) that assess the overall fit of the model. These are standard in SEM-based research, providing insight into how well the model explains the data.
2. Direct Effects: The standardized coefficients (β), standard errors (SE), and p-values for each direct relationship between the variables in the

model. This is a typical way of reporting path coefficients in SEM.

3. Variance Explained: The R^2 values represent the proportion of variance explained in the dependent variables (Job Demands, Emotional Exhaustion, and Job Performance). This is a common way to report the explanatory power of a model.
4. Indirect Effect: The mediating effect between variables, with the associated bootstrapped confidence interval (BC CI) and significance level. This is important for understanding indirect relationships in SEM.

Post Hoc Analyses

A multi-group analysis was performed to assess the stability of model parameters across gender and age groups. The results indicated that the constrained and unconstrained models did not differ significantly ($\Delta\chi^2 = 5.21$, $\Delta df = 4$, $p = .27$), suggesting that the structural relationships between personal demands, job demands, emotional exhaustion, and performance are robust across demographic subgroups.

Overall, the findings provide empirical support for the proposed model based on the Job Demands–Resources theory. Personal demands were identified as a key initiator of the health impairment process by heightening job demands, which in turn led to emotional exhaustion and reduced job performance. These results align with Bakker and Demerouti's (2017) theorization of JD-R theory dynamics, extending previous work by demonstrating how individual vulnerabilities contribute to strain and diminished performance outcomes.

Discussion, Implications, and Conclusion:

Discussion of the findings

Empirical results of this research are consistent with a bottom-up approach to occupational strain. Employees with high levels of personal demands, such as being workaholics, being especially hard on themselves, and having awfulizing tendencies, are more likely to view their job duties as demanding. This increased perception results in increased emotional exhaustion and subsequent decrements in job performance. The identified cascade of effects adds to and expands upon the well-established Job Demands-Resources (JD-R) theory by bringing to the foreground a unique psychological antecedent that acts upstream of objective job characteristics. Personal demands were found to be a strong predictor of job demands; job demands were significant predictors of emotional exhaustion, which was a significant determinant of both task and contextual performance. The observed sequential indirect effect confirms what has been proposed: that the route from internal pressures to impairment to performance is not a linear direct relation, but has a mediated effect as the result of an amplification of the perceived demands of the job and emotional exhaustion. This is consistent with transactional models of stress and resource-depletion models (Demerouti et al., 2001; Lazarus & Folkman, 1984).

The inside-out perspective explains why employees performing the same job may experience different degrees of strain. In the case of software development, an environment already plagued by high cognitive load, constant learning requirements, and strict deadlines, the compounding effect of individual demands appears to act as an amplifier. For example, having an obsession with faults or the need to tend to too much work not only wastes more hours but also distracts attention and hampers recovery. Such behaviors amplify cognitive and quantitative expectations and thus cause the spiral of exhaustion to spiral faster. Analogous associations have been found in empirical studies. Barbier et al. (2013) included personal demands in the JD-R model and reported associations with strain indicators, whereas Zeijen et al. (2021) showed the empirical support in a student population and explained the predictive validity of personal demands for exhaustion subsequently. Building on this literature, the current research places personal demands as the instigator of a serial mediation process that ultimately leads to declines in both task performance and contextual behaviours that are essential for team functioning.

The finding of the negative impact of emotional exhaustion on both task and contextual performance is of conceptual and practical importance. Decline in task performance as it corresponds to the loss of a cognitive focus required for coding, debugging, and designing systems. Conversely, deterioration in contextual performance, which includes behaviours such as assisting colleagues, knowledge sharing, and organisational citizenship, implies that emotional depletion reduces the willingness or ability of employees to go "above and beyond the call of duty". These outcomes align with the meta-analytic evidence that there is a relationship between exhaustion and worse objective and subjective performance outcomes (Taris, 2006; Lesener et al., 2019). The results, therefore, highlight the fact that the pathway of health impairment entails high organisational costs and underlines the need for organisations to better understand the full impact of employee exhaustion.

One such nuance that deserves to be addressed is that of the boundary conditions for the effect of personal demands. Although our model views personal demands as antecedents, these internal pressures are likely to interact with the context. For example, supportive leadership or high levels of job resources may buffer the degree to which personal demands will turn into perceived job demands. This moderating potential is consonant with extensions of the JD-R model that incorporate both personal and job resources as buffers (Xanthopoulou et al., 2007). While the present study examined the robustness of the results by gender and tenure and found no significant differences, it would be a good next step to investigate the possible moderating factors.

Theoretical Implications

This research affirms the JD-R theory in several important ways. First, it provides empirical evidence that personal demands are active as identifiable antecedents in the health impairment sequence, as opposed to existing as covariates or moderators. This elevation is what changes the concept of elevation from a descriptive additive to a causal, within JD-R, to support Bakker et al.'s (2017) proposition to more thoroughly integrate personal factors into the framework. Second, by modeling personal and job demands as second-order constructs, we show the multidimensionality of both domains in task-intensive work. This specification clarifies the aggregation of cognitive, quantitative, and learning demands that form the latent job demand variable mediating the influence of internal pressures. Third, the sequential mediation evidence enhances the literature about one's mechanisms, how personal cognitive and behavioral patterns change job appraisal, which depletes emotional energy, in turn explaining performance loss. These findings refined JD's R's health impairment pathway by specifying the intervening stage of cognitive appraisal.

The contributions of the study also make some theoretical refinements possible. JD-R scholarship needs to more explicitly include intra-individual self-regulatory processes (e.g., rumination, dysfunctional appraisals, overcommitment) as demand-generating processes. Incorporating these mechanisms could aid in the integration with transactional stress models and cognitive theories of perfectionism and catastrophic thinking (Flett & Hewitt, 2016; Ellis, 2003). Further, the results suggest a possible nonlinearity in the relationship between personal demands, such that the internal pressures can lead to disproportionately large increases in perceived demands after certain boundaries of workload or emotional stress are exceeded.

Managerial Implications

For practitioners, the message from this study is quite clear, and it is this that organisations should not assume that only objective workload reduction will ameliorate exhaustion and improve performance. Employees with uncompromising internal standards will keep on ramping up perceived demands unless these internal demands are addressed. Accordingly, interventions need to be incorporated. First, job design should continue to attempt to balance the cognitive load, schedule learning opportunities, and deadlines. Second, individual-level interventions should be directed at maladaptive personal demands - cognitive-behavioural training to reduce awfulizing and self-criticism, time management and detachment programmes to reduce workaholic tendencies, and initiatives fostering self-compassion and recovery can reduce the personal vulnerability factors that increase the job demands (Schaufeli et al., 2008; Flett & Hewitt, 2016).

For software companies in Pakistan, these findings are especially relevant. Many organisations operate under tight international contracts and follow cultural norms that favor the glorification of extended working hours. Human-resource interventions to normalize recovery and induce psychological safety when experiencing failure can help mitigate awfulizing and self-punitive responses to mistakes. Supervisors who are properly trained to recognise the signs of rumination and to encourage others to set boundaries will be able to avoid amplifying the job demands from personal pressures, as shown in our study.

Limitations and Future Research Suggestions

There are several limitations that deserve to be mentioned. The present study was based largely on self-reported measures on various constructs, despite the use of a two-wave design to reduce common method variance. Future investigations should combine objective performance parameters with multi-source ratings as a triangulation approach. Although the researchers were able to separate the effects of time (using statistical analysis), the study was an observational one; thus, no definite causal relationship can be drawn. Experimental manipulation of the availability of resources or cognitive mechanisms and longitudinal studies would provide more robust evidence on causal pathways.

Further, the sample was limited to the Pakistani IT industry, which limits the generalizability of the findings. Replication in various national settings is the only way of testing whether the phenomena observed are generalizable. Furthermore, the present study was limited to a small number of personal demands. Future research could broaden the scope of intrinsic pressure to include other forms of pressure, such as a fear of failure, imposter syndrome, or compulsive checking, to determine if there is a unique set of personal vulnerability factors that play a disproportionately negative role in knowledge-work contexts. Finally, the identification of moderators such as supervisory support, psychological capital, and organizational recovery practices might explain how certain conditions reduce the likelihood of personal demands to develop into perceived job demands and emotional exhaustion.

Conclusion

This study sheds more light on how critical the personal demands are in the Job Demands-Resources model for understanding the health-impairment continuum for software professionals. Workaholism, self-criticism, and awfulizing create a vicious cycle that increases requirements in the job, exhausts emotional capital, and ultimately destroys both work performance and discretionary behaviors needed for team success. Theoretically, the findings offer a greater appreciation of sources of strain that are not only generated externally but also have internal sources within intrapersonal relations. In practice, this implies a need for interventions combining aspects of job design and personal dynamics, leading to transformational efforts from seemingly normal job demands into mental tolls.

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