JOURNAL OF TECHN0-SOCIAL
ISSN: 2229-8940 e-ISSN: 2600-7940

Vol. 17 No. 2 (2025) 68-79
https://publisher.uthm.edu.my/ojs/index.php/jts

JTS

The Effect of Techno-Stress on Labour Management Relations

Salman, Abdulrasaq[1], Jimoh, Adams Lukman[2]*, Olawale, Yunusa Alabi[1]

[1, 3] *Department of Business Administration, University of Ilorin, Ilorin, NIGERIA*

[2] *Department of Auditing, College of Accounting, University of South Africa, Pretoria. SOUTH AFRICA*

[3] *Department of Industrial Relations and Personnel Management, University of Ilorin, Ilorin, NIGERIA*

*Corresponding Author: Jimoh.al@unilorin.edu.ng
DOI: https://orcid.org/10.30880/jts.2025.17.02.007

Article Info

Received: 13 July 2025
Accepted: 27 August 2025
Available online: 31 December 2025

Keywords

organizational performance, labor management relations, technology, techno-stress, work-life balance

Abstract

The rapid infusion of technology into the workplace has created a paradox in human resource management practice. As a result, there is a growing need to explore how techno-stress influences these relationships. The objective of this study is to determine the effect of techno-stress on labor-management relations. The study used a cross-sectional survey design. The target population comprised 319 employees of the Kwara State Internal Revenue Service (KW-IRS). A sample size of 178 samples was determined via Krejcie and Morgan's sample size formula while random sampling technique was used. The finding reveals that techno-stress significantly undermines labour–management relations, which positively influence organizational performance, while techno-stress shows no significant effect on employees' work–life balance. The study concluded that techno-stress can lead to psychological and physical strain. It is then recommended that organizations should encourage a healthy work-life balance and introduce stress management programs and resources.

1. Introduction

The increasing digitization of organizational activities has intensified employees' exposure to technology-related demands, making techno-stress a growing concern in contemporary workplaces (Fieseler, 2023). Techno-stress refers to the psychological strain and associated physical challenges experienced by employees when they are unable to cope effectively with technology-induced job demands, especially in a situation known to be by excessive workload, continuous learning requirements, and frequent system changes (Dunmade *et al.*, 2023). As organizations adopt advanced digital tools to enhance efficiency and competitiveness, employees are often expected to acquire new technological competencies within limited timeframes, which may heighten stress levels and adversely affect job performance.

Techno-stress has increasingly been recognized as a global workplace challenge with implications for labour–management relations (LMR) across different sectors and employment settings (Moorhead, 2019). LMR traditionally referred to interactions between employers and employees; however, in modern organizations, these relations are shaped by broader social and technological environments within which work is performed (Moorhead, 2019). LMR thus represent a dynamic socio-economic process that facilitates communication, cooperation, and mutual understanding among employees, management, and the organizational context. The quality of these relations is critical, as people constitute the most valuable asset of organizations, and their effective utilization determines long-term organizational performance (Fraenkel, 2023).

Prior studies emphasize that organizations increasingly acknowledge the strategic value of their workforce and the role of human resource management practices in sustaining performance over time (Frost, 2023). Maintaining positive relationships between employees and management, particularly within technologically intensive work environments, has therefore become essential (Stana & Nicolajsen, 2021). This perspective emphasizes the importance of LMR in navigating the pressures associated with rapid technological and process innovations in the workplace (Dean, 2022; Özgür, 2020). Dean (2022) further argues that stress-related conditions constitute a major contributor to poor workplace performance, as persistent pressure arising from organizational demands often translates into adverse health and productivity outcomes.

Empirical evidence suggests that organizational stress is driven by multiple factors, including inadequate training, malfunctioning equipment, weak performance standards, limited motivation, ineffective planning, poor communication, and unfavorable work environments (Pervin, 2022). The technological environment of organizations has also been identified as a significant determinant of employee job stress. High levels of dissatisfaction, reduced output, and strained interpersonal relationships frequently signal the presence of stress within the workplace (Bhat *et al*., 2023). In the Nigerian context, these challenges are compounded by infrastructural deficits and uneven digital readiness across organizations. The rapid transition to digital systems without sufficient staff training reportedly generated technological stress among employees, resulting in adaptation difficulties, declining morale, and increased workplace tension (Jimoh, 2022). These challenges were further exacerbated by fragmented systems and limited infrastructure, which undermined communication and trust between employees and management, thereby affecting LMR (Yahaya *et al*., 2022).

National survey evidence indicates that approximately 52% of employees in Nigerian organizations experience technology-related challenges at work (John, 2021). This statistic highlights the scale of the problem and reinforces the need for effective LMR as a mechanism for addressing technology-induced stress. LMR are often reflected in employee output and organizational effectiveness over time, making them a critical determinant of organizational success. While technological integration holds the potential to improve performance, it simultaneously creates a paradox in which rising techno-stress undermines job satisfaction, communication, and cooperation, thereby increasing the likelihood of workplace conflict.

Despite growing scholarly attention to techno-stress, existing studies in Nigeria have largely focused on individual-level outcomes such as job satisfaction, burnout, and performance, with limited emphasis on relational outcomes such as LMR. Similarly, studies on LMR often overlook the role of the technological work environment. This reveals a significant empirical gap in understanding how techno-stress shapes LMR and how these relations, in turn, influence organizational performance and work–life balance within Nigerian organizations. Furthermore, limited research has examined these variables within a single integrated framework, particularly in public sector institutions operating under rapid digital transformation.

i. To determine the effect of techno-stress on LMR;
ii. To examine the effect of LMR on organization performance; and
iii. To determine the effect of techno-stress and work-life balance.

The significance of this study lies in its contribution to both theory and practice. By empirically linking techno-stress to LMR, the study extends existing human resource management literature beyond individual-level outcomes to relational and organizational dynamics. The findings will provide evidence-based insights for managers and policymakers on how technology implementation strategies can be designed to minimize stress and strengthen LMR. In addition, the study offers practical guidance for organizations in Nigeria and similar developing economies seeking to balance digital transformation with employee well-being, effective LMR, and sustainable organizational performance.

Figure I illustrates the research model of the study, showing the proposed relationships among the variables. Techno-stress is depicted as influencing LMR and work–life balance, while labour–management relations are shown to affect organizational performance. The model highlights how technology-related stress and relational dynamics within organizations jointly shape employee well-being and organizational performance.

Journal of Techno-Social Vol. 17 No. 2 (2025) p. 68-79

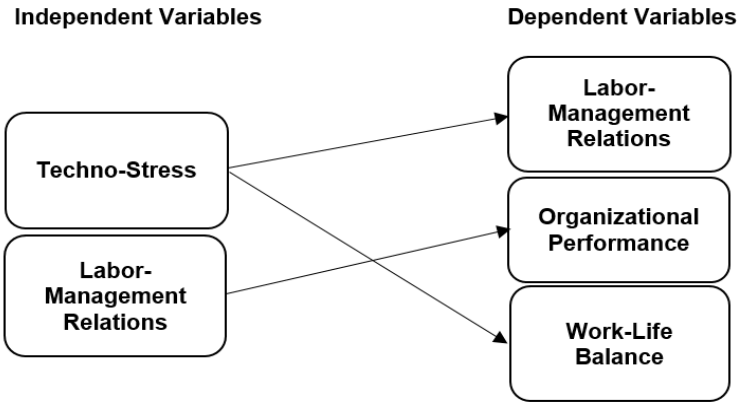

Figure I: Research Model.
Source: Author's own creation.

2. Literature Review

2.1 Concept of Labor-Management Relationship

The concept of a LMR refers to the dynamic interaction between employees and employers within an organization, focusing on how they collaborate to achieve mutual goals. It encompasses communication, negotiation, conflict resolution, and cooperation between workers and management, aimed at promoting a positive work environment and enhancing performance (Gabr *et al*., 2021; Jimoh, 2022). Traditionally, LMR were confined to matters like wages, working conditions, and job security, but in modern organizations, they also involve broader concerns such as employee engagement, organizational culture, and technological adaptation (Batra & Halder, 2024). According to Özgür (2020), the LMR is a framework for organizational justice that encompasses organizational culture, management style, grievance and conflict resolution procedures, and procedural sequences. In fact, fostering positive employee relations and lowering conflict at work are the main objectives of LMR. Economic policy and work organization are affected by the LMR (Sharma *et al*., 2024).

2.2 Concept of Techno-stress

Anxiety, tension, or distress brought on by being overtaken by new technology is known as techno-tress. It happens when people cannot adjust and figure out how to use technology in a positive, healthy way (Califano *et al*., 2022). It has been demonstrated that technological stress negatively affects both physical and psychological well-being, with ramifications for businesses, workers, and their families (Capone *et al*., 2021). People may experience agitation, difficulty sleeping, and an elevated heart rate, among other symptoms. The effects of techno stress have been more noticeable in recent years because of the quick adoption of ICT in the workplace (Capone *et al*., 2021). According to Fischer *et al*. (2021) techno stress can be referred to as the mental stress and the negative psychophysical effects that employees experience due to the usage of ICT at work. According to Tarafdar *et al*. (2007), there are several sub factors that contribute to techno-stress, including invasion, complexity, insecurity, overload, and uncertainty. Techno-overload, the first factor, is the stress that technology causes with regard to time and productivity at work. Techno-invasion is when personal time is taken away from socializing with family, vacations, weekends, and other events by technology. Techno-complexity, the next sub factor, addresses issues with technology use and necessary skills. One of the components of technological insecurity is the fear of colleagues sharing knowledge. Techno-uncertainty, the final sub factor, relates to the organization's ongoing technological changes.

2.3 Techno-stress and Labor-Management Relations

Empirical studies have increasingly demonstrated that techno-stress has significant implications for LMR by shaping employees' attitudes, behaviours, and interactions within organizations. Evidence suggests that employees who experience high levels of techno-stress often report heightened anxiety, tension, and emotional exhaustion, which adversely affect interpersonal relationships and trust between labour and management (Yener *et al*., 2021; Califano *et al*., 2022). As digital technologies become more deeply embedded in organizational processes, the relational consequences of techno-stress have become more pronounced (Tarafdar et al., 2019). Research on techno-overload shows that employees subjected to excessive technology-driven workloads perceive increased pressure to work faster and longer, which frequently results in frustration and dissatisfaction with management expectations (Califano *et al*., 2022; Alam, 2023). These perceptions have been empirically linked to weakened communication, reduced cooperation, and declining confidence in managerial support, all of which are

central elements of effective LMR. When employees feel that technological demands exceed their capacity, tensions are more likely to emerge between staff and management over performance expectations and workload allocation.

Further empirical evidence indicates that constant connectivity enabled by digital tools contributes to blurred work boundaries, thereby intensifying work-related strain and undermining relational harmony within organizations. Saadeh and Suifan (2020) found that continuous availability to work-related communication limits employees' ability to disengage from work, reduces cognitive focus, and increases irritability, which can negatively affect workplace interactions. Such conditions may foster misunderstandings and conflicts, particularly when employees perceive management as insensitive to the pressures created by technology use. Studies have also shown that techno-stress contributes to work–family conflict, which indirectly affects LMR. Kalischko and Riedl (2024) reported that technology-induced intrusion into personal time generates dissatisfaction and resentment that may be transferred into the workplace, thereby increasing the likelihood of conflict between employees and management. These findings suggest that techno-stress does not only affect individual well-being but also disrupts the relational fabric that sustains cooperation and mutual trust in organizations.

Empirical research further highlights techno-complexity as a critical dimension influencing labour–management relations. When employees perceive technologies as overly complex and feel inadequately skilled to use them effectively, they often experience frustration, reduced self-efficacy, and disengagement (Tarafdar *et al*., 2022). Such experiences have been associated with negative perceptions of managerial support and fairness, particularly in contexts where adequate training and technical assistance are lacking. Over time, this may erode trust and weaken LMR. Above all, existing empirical evidence supports a negative association between techno-stress and LMR, indicating that unmanaged technological demands can undermine cooperation, communication, and trust within organizations. However, despite these findings, limited empirical studies have examined this relationship within developing country contexts, particularly in organizations undergoing rapid digital transformation. This gap provides a basis for the present study to empirically investigate the relationship between techno-stress and LMR.

H1: Techno-stress has a significant effect on labor-management relations.

2.4 Labour-Management Relations and Organizational Performance

Empirical research consistently demonstrates that labour–management relations play a critical role in shaping organizational performance. Studies have shown that organizations characterized by supportive and cooperative LMR tend to record higher levels of employee motivation, engagement, and task performance (Mikkelsen *et al*., 2020). Gabr *et al.* (2021) and Jimoh (2022) provide evidence that constructive interactions between employers and employees foster a work environment in which organizational goals are more effectively pursued through collaboration and mutual commitment. Several empirical studies situate LMR as a core human resource management mechanism through which organizational performance is enhanced. Kalischko and Riedl (2022), Chen *et al*. (2022), and Fischer and Riedl (2020) found that positive LMR are associated with improved productivity, reduced workplace conflict, and stronger employee identification with organizational objectives. In such contexts, employees perceive management as partners in progress rather than as authority figures, which strengthens commitment and willingness to contribute discretionary effort toward organizational success.

Evidence further suggests that LMR influence organizational performance through trust-based practices such as open communication, participatory decision-making, regular feedback mechanisms, and employee empowerment. Fischer *et al.* (2021) report that these practices enhance employee trust and loyalty, which in turn improve individual and collective performance outcomes. Conversely, organizations that fail to cultivate trust and respect between management and employees often experience reduced morale, disengagement, and declining performance. Empirical findings also confirm a direct link between management–employee relationships and organizational effectiveness. Capone *et al.* (2021) and Jimoh *et al.* (2018) found that organizations with strong LMR benefit from improved employee performance, lower turnover intentions, and enhanced organizational stability. Similarly, Jimoh and Kadiri (2018) demonstrated that the quality of manager–employee relationships significantly predicts organizational performance by shaping employee attitudes and behavioral outcomes.

Overall, existing empirical evidence emphasized the importance of LMR as a determinant of organizational performance. By fostering motivation, loyalty, trust, and productivity, effective LMR contribute to sustainable organizational outcomes. Despite these findings, limited empirical research has examined this relationship within developing economies undergoing institutional and technological change. It is against this background that the present study seeks to empirically examine the relationship between LMR and organizational performance, leading to the formulation of the following hypothesis.

H2: Labor-Management Relations has a significant effect on Organizational Performance.

Journal of Techno-Social Vol. 17 No. 2 (2025) p. 68-79

2.5 Techno-Stress and Work-Life Balance

Techno-stress, a phenomenon arising from excessive use of technology in the workplace, significantly impacts employees' work-life balance. The rapid advancement of digital tools and communication technologies has led to increased expectations for constant connectivity, often blurring the boundary between work and personal life (Salman *et al*., 2024). Employees frequently experience techno-overload, where they struggle to keep up with an overwhelming volume of emails, virtual meetings, and digital tasks, leading to stress and burnout. Additionally, the pressure to quickly adapt to new technologies (techno-complexity) can create cognitive strain, further disrupting work-life harmony. This persistent technological intrusion reduces employees' ability to disconnect after work hours, thereby affecting personal relationships, leisure time, and overall well-being (Isiaka *et al*., 2017). Studies have shown that high levels of techno-stress correlate with lower job satisfaction and higher work-life conflict, emphasizing the need for organizations to implement strategies such as digital detox policies, flexible work schedules, and employee training programs to mitigate the negative effects (Salman *et al*., 2024).

Despite the challenges posed by techno-stress, effective organizational interventions and personal coping mechanisms can help employees maintain a balanced work-life experience (Jimoh *et al*., 2024). Employers play an important role in tackling techno-stress by setting clear boundaries for technology use, promoting a culture that discourages after-hours work expectations, and fostering digital literacy to reduce frustration associated with complex systems. Employees, on the other hand, can adopt self-regulation techniques such as mindfulness, time management, and periodic digital disconnection to mitigate stressors. Furthermore, research indicates that employees who develop strong digital resilience through skill-building and adaptive coping strategies are better equipped to handle technological demands without compromising their personal lives (Dunmade *et al*., 2023). As digital transformation continues to reshape workplaces, balancing technology use with employee well-being remains a key priority for organizations seeking to enhance performance, engagement, and job satisfaction. It is in the light of this that the study proposes the following hypothesis:

H3: There is no significant relationship between techno-stress and work-life balance.

3. Theoretical Underpinning

3.1 Job Demands-Resources (JD-R) Model

The Job Demands-Resources (JD-R) Model Demerouti *et al.* (2001) presents a helpful theoretical framework for examining the effects of techno-stress on labour-management relations in the Kwara State Internal Revenue Service (KW-IRS). The model contends that every job context consists of two main elements: job demands and job resources. Where job demands are high and work resources are few, it leads to stress and burnout that destroy trust, communication, and cooperation between employees and management (Bakker & Demerouti, 2007). This is at the core of the first research objective of the study, which seeks to establish the effect of techno-stress on LMR. In KW-IRS, the lack of new computer systems' support facilities has increased employees' psychological load, which has resulted in failures of communication and deteriorating employee-management relations. The JD-R model equally provides support for the second objective by explaining how lowered LMR initiated by unresolved job demands that weaken organizational effectiveness through low morale and dysfunctional cooperation (Schaufeli & Taris, 2014). Thirdly, concerning the third objective, the model illustrates how the combination of techno-stress and inadequate work-life balance, especially under tight managerial hierarchies, intensifies workers' burnout and workplace conflicts. The JD-R model, thus, describes the interdependent relationships between stress, labour relations, and organizational performance in KW-IRS.

4. Methodology

This study adopted a cross-sectional survey research design, which is appropriate for examining relationships among variables and predicting behavioral patterns within a defined population at a single point in time (Bordens & Abbott, 2002). The design was considered suitable given the study's objective of analyzing the relationships among techno-stress, LMR, organizational performance, and work–life balance without manipulating the study environment. The target population comprised 319 employees of the Kwara State Internal Revenue Service (KW-IRS). To ensure representativeness and minimize selection bias, the study employed simple random sampling, a probability sampling technique in which every member of the population has an equal and independent chance of being selected (Creswell & Creswell, 2018). This method was chosen because it enhances external validity and supports the generalization of findings to the wider population (Fraenkel *et al*., 2012). Bryman (2016) further notes that simple random sampling is particularly appropriate in quantitative research where statistical inference is required.

Using Krejcie and Morgan's (1970) sample size determination table, a sample size of 178 respondents was selected from the population of 319 employees. The sample size was further validated using the Krejcie and Morgan formula:

$$s = (X^2NP(1-P)) / (e^2(N-1) + X^2P(1-P))$$

Substituting the values:

$s = (3.841 \times 319 \times 0.5(1-0.5)) / (0.05^2(319-1) + 3.841 \times 0.5(1-0.5))$

$s = 306.31975 / 1.75525$

$s = 178$

The respondents were selected across different hierarchical levels within the organization, including top-level, middle-level, and lower-level management, to ensure a comprehensive understanding of LMR. A summary of respondents' demographic characteristics is presented in Table 1 to provide contextual insight for interpreting the findings. Data were collected using a structured questionnaire designed in line with the study objectives and existing validated measures from prior empirical studies. The questionnaire comprised sections measuring techno-stress, LMR, organizational performance, and work–life balance. Responses were captured using a five-point Likert scale ranging from strongly disagree to strongly agree, which is widely accepted in organizational and behavioral research for measuring perceptions and attitudes. The research process involved obtaining institutional approval, administering the questionnaire directly to selected respondents, and ensuring voluntary participation and confidentiality. Completed questionnaires were retrieved, screened for completeness, coded, and entered into statistical software for analysis. Both descriptive and inferential statistical techniques were employed in data analysis. Descriptive statistics, including frequencies, means, and standard deviations, were used to summarize respondents' demographic characteristics. Inferential statistics, particularly simple regression analysis, were used to test the proposed hypotheses and examine the relationships among the study variables.

To ensure validity, content validity was established by adapting measurement items from previously validated scales and subjecting the instrument to expert review to confirm clarity, relevance, and alignment with the study objectives. Construct validity was further supported through clear operationalization of variables consistent with existing literature. Reliability of the research instrument was assessed using Cronbach's alpha coefficient. All constructs recorded reliability coefficients above the recommended threshold of 0.70, indicating acceptable internal consistency and reliability of the measurement scales. The methodological approach adopted in this study provides a rigorous basis for examining the proposed relationships and supports the credibility and robustness of the findings.

Table 1 *Summarizing measurement items*

Variable	Dimensions	No. of Items	Scale	Source(s)
Techno-stress	Techno-overload, Techno-invasion, Techno-complexity	10	5-point Likert scale	Tarafdar et al. (2007)
Labour-Management Relations	Communication, Trust, Participation	8	5-point Likert scale	Yusoff et al. (2016)
Organizational Performance	Efficiency, Goal attainment, Innovation	6	5-point Likert scale	Richard et al. (2009)
Work-Life Balance	Work interference with life, Life interference with work	6	5-point Likert scale	Fisher, Bulger and Smith (2009)

Source: SPSS output, 2025

5. Results and Interpretations

The demographic profile of the 178 respondents reveals a moderately diverse workforce at the Kwara State Internal Revenue Service (KW-IRS). The gender distribution shows a male majority (58.4%), with females accounting for 41.6%, indicating a fairly balanced representation. In terms of age, the largest group falls within the 30–39 years range (38.2%), followed by those aged 40–49 years (28.1%), suggesting a relatively youthful and mid-career workforce. Regarding work experience, most employees have 5–10 years of experience (40.4%), while 22.5% have less than 5 years, reflecting a mix of new and experienced staff. Educationally, more than half hold HND or bachelor's degrees (52.8%), and a significant portion possess master's degrees (31.5%), showing a well-educated workforce. At the managerial level, the majority are in lower-level positions (51.6%), with 36.0% in middle management and only 12.4% in top management, indicating a hierarchical structure typical of public

Journal of Techno-Social Vol. 17 No. 2 (2025) p. 68-79

service organizations. This demographic spread provides a broad perspective on how techno-stress and labour-management relations are perceived across different employee categories.

Table 2 *Demographic information of the respondents*

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	104	58.4%
	Female	74	41.6%
Age	20–29 years	32	18.0%
	30–39 years	68	38.2%
	40–49 years	50	28.1%
	50 years and above	28	15.7%
Years of Experience	Less than 5 years	40	22.5%
	5–10 years	72	40.4%
	11–15 years	42	23.6%
	Above 15 years	24	13.5%
Educational Level	OND/NCE	16	9.0%
	HND/Bachelor's Degree	94	52.8%
	Master's Degree	56	31.5%
	Doctorate (PhD)	12	6.7%
Managerial Level	Top Management	22	12.4%
	Middle Management	64	36.0%
	Lower-Level Staff	92	51.6%

Source: SPSS output, 2025

5.1 Test of Hypothesis

Prior to hypothesis testing, the goodness-of-measure of the study variables was assessed to ensure the adequacy of the data for regression analysis. Diagnostic tests indicated that the assumptions of linear regression were satisfactorily met. Multicollinearity was examined using Variance Inflation Factor (VIF) and tolerance values. All VIF values were equal to 1.000 and corresponding tolerance values exceeded the recommended minimum threshold of 0.10, indicating the absence of multicollinearity and confirming the independence of the predictor variables. These results suggest that the regression coefficients are stable and suitable for interpretation.

The study employed separate simple regression models to test each hypothesis in line with the study objectives and conceptual framework. This approach was adopted to isolate the direct effects among key constructs rather than estimating a single composite model. Given that the hypotheses propose distinct causal paths—techno-stress to LMR, LMR to organizational performance, and techno-stress to work–life balance—separate models provide clearer estimates of explanatory power and reduce potential confounding effects. This analytical strategy is consistent with prior empirical studies examining direct relationships among organizational variables.

Results for Hypothesis 1 indicate a statistically significant negative relationship between techno-stress and LMR ($R^2 = 0.644$, $p < 0.05$). The R^2 value suggests that techno-stress accounts for approximately 64.4% of the variance in LMR. The negative regression coefficient ($B = -0.354$) implies that increased technological stress weakens communication, trust, and interaction between employees and management. This finding supports the Job Demands–Resources model, which posits that excessive job demands without sufficient resources lead to strain and relational breakdowns (Demerouti *et al*., 2001). Empirical support is also provided by Tarafdar *et al*. (2015), who found that techno-stress undermines employee morale and collaboration with supervisors. Hypothesis 1 is therefore accepted.

Hypothesis 2 examined the effect of LMR on organizational performance. The findings reveal a strong and statistically significant positive relationship ($R^2 = 0.853$, $p < 0.01$), indicating that 85.3% of the variance in organizational performance is explained by LMR. The positive coefficient ($B = 0.503$) suggests that improved trust, cooperation, and communication between management and employees enhance organizational outcomes. This result aligns with prior empirical studies emphasizing the role of constructive LMR in driving performance and

employee engagement (Kaufman, 2015; Boxall & Purcell, 2016). The finding is further supported by social exchange theory, which argues that fair and supportive treatment by management fosters reciprocal commitment and performance-enhancing behaviors (Blau, 1964). Hypothesis 2 is accepted.

Hypothesis 3 assessed the relationship between techno-stress and work–life balance. The result indicates a marginally non-significant relationship (R^2 = 0.065, p = 0.051), suggesting that techno-stress explains only 6.5% of the variance in work–life balance. Although the regression coefficient is positive (B = 0.203), indicating that increased techno-stress may be associated with greater attempts to manage work–life boundaries, the relationship does not meet the conventional threshold for statistical significance. This finding suggests that work–life balance is influenced by a broader range of organizational, personal, and contextual factors beyond technological stress alone. Prior studies have similarly shown that while techno-stress contributes to work–life interference, its effect is often mediated or moderated by other variables such as organizational support and individual coping strategies (Ayyagari *et al*., 2011; Maier *et al*., 2019). Hypothesis 3 is therefore rejected.

Above all, the findings support a coherent model in which techno-stress influences LMR, which in turn plays a critical role in shaping organizational performance, while the direct effect of techno-stress on work–life balance appears weak and context-dependent.

Table 3 *Summary of hypotheses tested*

Hypothesis	R Square	Sig. Value	Coefficient (B)	Std. Error	t-Value	Tolerance	VIF	Decision
H1: Techno-stress → Labour–Management Relations	0.644	0.029	−0.354	0.135	−2.629	1.000	1.000	Accepted
H2: Labour–Management Relations → Organizational Performance	0.853	0.004	0.503	0.173	2.903	1.000	1.000	Accepted
H3: Techno-stress → Work–Life Balance	0.065	0.051	0.203	0.103	1.974	1.000	1.000	Rejected

Source: SPSS output, 2025

6. Discussion of Findings

The analysis of the first hypothesis demonstrated that the null hypothesis was accepted and the alternative hypothesis was rejected, which states that there is a significant relationship between the effect of techno-stress and labor management relations. This finding is in line with the results by (Estrada-Muñoz et al., 2021; Gabr *et al*., 2021; Özgür, 2020). The result of this finding has shown that techno-stress, the stress experienced due to the use of technology, has a detrimental effect on LMR. It arises from constant connectivity, information overload, and the pressure to quickly adapt to new technological tools, which lead to employee burnout, decreased job satisfaction, and strained communication. As employees struggle to keep up with technological demands, frustration may arise, leading to conflicts with management.

The second hypothesis demonstrated that the null hypothesis was rejected, and the alternative hypothesis was accepted, that there is a significant relationship between the effect of LMR and organizational performance. Decuypere and Schaufeli (2020) confirmed this in their study: LMR have a significant effect on organizational performance. This is an indication that LMR play a vital role in shaping organizational performance. Positive relations, characterized by open communication, mutual respect, and collaboration, lead to higher employee morale, increased engagement, and reduced conflict. When employees and management collaborate effectively, organizations benefit from higher performance and better decision-making.

The last hypothesis tested demonstrated that the null hypothesis was rejected and the alternative hypothesis was accepted; that is, there is a significant relationship between the effects of techno-stress and work-life balance. The findings reveal that techno-stress negatively affects employees' work-life balance by blurring the boundaries between work and personal time. This is contrary to the result by (Mikkelsen *et al*., 2020; Morganson *et al*., 2022). With the rise of digital tools and remote work, employees often feel obligated to remain connected beyond regular working hours, leading to a sense of "always being on." This constant connectivity results in longer working hours, reduced downtime, and difficulty disconnecting from work tasks. Employees report increased fatigue, stress, and a decline in their personal time for family and leisure activities.

Journal of Techno-Social Vol. 17 No. 2 (2025) p. 68-79

6.1 Implication of the Study

6.1.1 Theoretical Implications

The findings of this study have several important theoretical implications. First, they advance the Job Demands–Resources (JD-R) model by showing that techno-stress not only affects employee burnout and productivity but also undermines LMR. This highlights the relational consequences of technological demands in organizations. Second, the positive effect of LMR on organizational performance reinforces Social Exchange Theory, providing empirical support that trust, collaboration, and fair treatment foster reciprocal commitment and behaviors that enhance performance. Third, the marginally non-significant relationship between techno-stress and work–life balance underscores the complexity of this construct, suggesting that individual coping strategies, organizational support, and contextual factors play significant roles. Finally, the study elucidates causal pathways among workplace variables by demonstrating that techno-stress indirectly influences organizational performance through LMR, offering deeper insights into the mechanisms through which technology-related stressors shape organizational performance.

6.1.2 Practical implications

The study provides actionable insights for organizations seeking to enhance employee well-being and performance. Managing techno-stress through digital wellness programs, clear technology usage policies, and employee training can help maintain healthy LMR. Strengthening interpersonal relationships between employees and management through open communication, participatory decision-making, and recognition programs can further enhance organizational performance. Additionally, promoting work–life balance via flexible work arrangements, mental health support, and boundary management initiatives can help employees cope with technological demands effectively. Organizations are also encouraged to regularly monitor techno-stress levels, LMR, and work–life balance to identify emerging issues and implement timely interventions. Overall, these findings provide guidance for leadership and human resource practices aimed at optimizing both employee well-being and organizational performance.

7. Recommendation

Organizations must recognize the adverse effects of techno-stress and proactively implement strategies to mitigate its impact on employees and organizational performance. This includes fostering clear communication, providing training and ongoing support to help employees adapt to new technologies, and establishing policies that set boundaries for after-hours work. To promote a healthier work environment, organizations should encourage regular breaks, support stress management programs, and implement initiatives that enhance work-life balance. Additionally, investing in ergonomic office furniture, ensuring well-lit and clean workspaces, and providing the necessary tools and resources for efficient task completion can improve employees' physical comfort and overall well-being. By addressing techno-stress through these measures, organizations can strengthen LMR, enhance performance, and help employees maintain a sustainable balance between work and personal life, reducing fatigue and stress while fostering a more productive and engaged workforce.

8. Conclusions

Based on the findings from the study and the variables used. It is therefore, encourages future researcher to focus their studies comparative effects of techno-stress, working environment, and flexible working hours on LMR across different organizations and industries to identify best practices. Since this present study did not cover that area. Additionally, explore how organizational culture influences the relationship between techno-stress, working environment, flexible working hours, and LMR. And lastly, investigate how emerging technologies, such as AI and automation, impact labor-management relations and the potential stressors associated with these advancements. The study revealed the growing importance of tackling techno-stress in the modern workplace, particularly its influence on LMR, organizational performance, and work-life balance. The integration of digital tools and new technologies, while offering opportunities for increased performance, has also introduced significant stressors for employees. This techno-stress, characterized by information overload, constant connectivity, and the pressure to adapt to new tools, can lead to psychological and physical strain, ultimately disrupting LMR. Effective labor-management relations are vital for fostering collaboration, ensuring employee well-being, and enhancing organizational performance. However, when techno-stress goes unmanaged, it can erode trust and communication between workers and management, leading to lower job satisfaction and potential conflicts. Furthermore, techno-stress negatively affects work-life balance, as employees struggle to disconnect from work and manage the demands of new technologies during their personal time, leading to burnout and decreased performance.

Acknowledgement

We would like to express our appreciation for the support provided by all parties directly or indirectly involved in this research. We also thank our colleagues and collaborators for their support and assistance throughout the research process.

Conflict of Interest

The authors declare that there is no conflict of interest regarding the publication of the paper.

Author Contribution

The authors are responsible for the study conception, research design, data collection, data analysis, result interpretation and manuscript drafting.

References

Ayyagari, R., Grover, V., & Purvis, R. (2011). Technostress: Technological antecedents and implications. *MIS Quarterly*, *35*(4), 831–858. https://doi.org/10.2307/41409963.

Bakker, A. B., & Demerouti, E. (2007). The Job Demands-Resources model: State of the art. *Journal of Managerial Psychology*, 22(3), 309–328. https://doi.org/10.1108/02683940710733115.

Batra, S. and Halder, A. (2024). Toward a flourishing workplace: exploring the impact of digitalization on young construction professionals' *physical–mental well-being, Engineering, Construction and Architectural Management,* Vol. ahead-of-print No. ahead-of-print. https://doi.org/10.1108/ECAM-02-2024-0190.

Bhat, M.A., Tariq Khan, S. and Rainayee, R.A. (2023). Assessment of perceived labor market conditions in employees' turnover intention model – mediation and moderation analyzes, *PSU Research Review*, 7(1), pp. 1-32. https://doi.org/10.1108/PRR-05-2020-0017.

Califano, G., Capasso, M., & Caso, D. (2022). Exploring the roles of online moral disengagement, body esteem, and psychosexual variables in predicting sexting motivations and behaviors. *Computers in Human Behavior*, 129, 107146. https://doi.org/10.1016/j.chb.2021.107146

Capone, V., Marino, L., & Park, M. S. A. (2021). Perceived employability academic commitment and competency of university students during the COVID-19 pandemic: An exploratory study of student well-being. *Frontiers in Psychology*, 12, 788387. https://doi.org/10.3389/fpsyg.2021.788387.

Chen, B., Wang, L., Li, B., & Liu, W. (2022). Work stress, mental health, and employee performance. *Frontiers in Psychology*, 13, 1006580. doi: 10.3389/fpsyg.2022.1006580.

Dean, M. (2022). *Critical and effective histories: Foucault's methods and historical sociology*. Routledge. Decuypere, A., & Schaufeli, W. (2020). Leadership and work engagement: Exploring explanatory mechanisms. *German Journal of Human Resource Management, 34(1), 69-95. doi: 10.1177/2397002219892197*.

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. https://doi.org/10.1037/0021-9010.86.3.499.

Dunmade, E.O., Ajayi, M.A., & Jimoh, A.L. (2023). Globalization and Its Impact on Human Resource Management Practices in Pz Cussons Nigeria Plc., Lagos. The Journal of Business Studies. 7(1). https://www.fcm.esn.ac.lk/jbs/vol_07-1.html#. https://doi.org/10.35741/issn.0258-2724.55.5.8.

Estrada-Muñoz, C., Vega-Muñoz, A., Castillo, D., Müller-Pérez, S., & Boada-Grau, J. (2021). Technostress of Chilean Teachers in the Context of the COVID-19 Pandemic and Teleworking. *International journal of environmental research and public health*, 18(10), 5458. https://doi.org/10.3390/ijerph18105458.

Fieseler, C., Grubenmann, S., Meckel, M., & Müller, S. (2022). The leadership dimension of coping with technostress. *47th Hawaii International Conference on System Sciences*, 530-539. doi: 10.10009.HICSS.2014.73.

Fischer, T., & Riedl, R. (2020). On the stress potential of an organisational climate of innovation: A survey study in Germany. *Behaviour and Information Technology*, 1–22. doi: 10.1080/0144929X.2020.1836258.

Fischer, T., Reuter, M., & Riedl, R. (2021). The digital stressors scale: Development and validation of a new survey instrument to measure digital stress perceptions in the workplace context. *Frontiers in Psychology*, 12, 607598. doi: 10.3389/fpsyg.2021.607598.

Fisher, G. G., Bulger, C. A., & Smith, C. S. (2009). Beyond work and family: A measure of work/nonwork interference and enhancement. Journal of Occupational Health Psychology, 14(4), 441–456. https://doi.org/10.1037/a0016737.

Frost, P.J. (2023). *Toxic emotions at work*. Boston: Harvard Business School Press. https://doi.org/10.1225/805X.

Henry, O. & Evans, A.J. (2018). Occupational Stress in Organisations. *Journal of Management Research. 8. (3).* p123-135. https://doi.org/10.1037/1072-5245.12.3.241.

Jimoh, A.L. (2022). The influence of perceived organizational support on talent management and job performance. *Jurnal Aplikasi Manajemen dan Bisnis*, 8(3). Permalink/DOI:https://doi.org/10.17358/jabm.8.3.738.

Jimoh, A.L., Alakoso, I., & Adenigba, A.J. (2018). Effect of emotional labour on employees' work life balance in selected catering companies in Lagos State, Nigeria. *Ilorin Journal of Management Sciences*. 5(1). http://ejournals.unilorin.edu.ng/journals/index.php/ijms/article/view/233. https://doi.org/10.51865/EITC.2025.01.04.

Jimoh, A. L. & I. B. Kadiri (2018). Impact of staff welfare on job commitment in tuyil pharmaceutical company, Ilorin, Kwara State. *LASU Journal of Human Resource Management and Employment Relations*. 1(1). https://lasuerhrmjournal.com.ng/volume-1-issue-1/ https://doi.org/10.36108/ljerhrm/8102.01.0120.

Jimoh, A.L. & Kee, D.M.H. (2022). Talent management: the way out of poor task performance, *Industrial and Commercial Training*, 54(4), pp. 623-636. https://doi.org/10.1108/ICT-03-2022-0016.

Jimoh, A.L., Salman, A., Yahaya, I.J. & Animashaun, I.A. (2024). Effect of trade unionism on non-academic staff performance in a public institution. *Journal of human resource management*. 27(2), 22-33. https://doi.org/10.46287/LOLL5289.

Isiaka S.B., Kadiri, I.B. & Jimoh, A.L. (2017). Effect of reward on organizational commitment: a case study of Lagos state internal revenue service, Nigeria. *Journal of Sustainable Development in Africa*. 19(3). http://www.jsd-africa.com. https://doi.org/10.26577/fjss.2023.v9.i1.06.

Kalischko, T. & Riedl, R. (2024). On the consequences of electronic performance monitoring in organizations: theory and evidence, *Digital Transformation and Society*, 3(1), pp. 50-79. https://doi.org/10.1108/DTS-10-2022-0054.

Kalischko, T., & Riedl, R. (2021). Electronic performance monitoring in the digital workplace: Conceptualization, review of effects and moderators, and future research opportunities. *Frontiers in Psychology*, 12. doi: 10.3389/fpsyg.2021.633031.

Kalischko, T., & Riedl, R. (2022). Electronic performance monitoring: Review of theories, conceptual framework, and study proposal. In Fui-Hoon Nah, F., & Siau, K. (Eds), HCI in Business, Government and Organizations, *Lecture Notes in Computer Science* (pp. 388–406). Cham: Springer International Publishing. doi: 10.1007/978-3-031-05544-7_29.

Kaufman, B. E. (2015). The evolving concept of strategic HRM. Human Resource Management Review, 25(4), 270–285. https://doi.org/10.1016/j.hrmr.2015.01.004.

Maier, C., Laumer, S., & Weitzel, T. (2019). Technostress and the hierarchical levels of user acceptance. Information Systems Journal, 29(3), 560–595. https://doi.org/10.1111/isj.12186.

Mikkelsen, A., Ogaard, T. & Lovrich, N. (2000). Modeling the effects of organizational setting and individual coping style on employee's subjective health, job satisfaction and commitment, *Public Administration Quarterly*, 24(3), pp. 371-397. https://doi.org/10.9744/jti.15.1.13-24.

Morganson, V. J., Litano, M. L., & O'Neill, S. K. (2022). Promoting work-family balance through positive psychology: A practical review of the literature. *The Psychologist-Manager Journal, 17(4), 221-245.* doi: 10.1037/mgr0000023

Pervin, K. (2022). Personnel Management, England: Stanley Thornes Publishers Ltd. Pilot and Dennis F Hungler 5th edition 1995; *Nursing Research*, Principles and Methods. https://doi.org/10.1177/0047287592031002122.

Richard, P. J., Devinney, T. M., Yip, G. S., & Johnson, G. (2009). Measuring organizational performance: Towards methodological best practice. Journal of Management, 35(3), 718–804. https://doi.org/10.1177/0149206308330560

Gabr, H. M., Soliman, S. S., Allam, H. K., & Raouf, S. Y. A. (2021). Effects of remote virtual work environment during COVID-19 pandemic on technostress among Menoufia University Staff, Egypt: a cross-sectional study. *Environmental Science and Pollution Research*, 1-8. https://doi.org/10.1007/s11356-021 14588-w

Özgür, H. (2020). Relationships between teachers' technostress, technological pedagogical content knowledge (TPACK), school support and demographic variables: A structural equation modeling. *Computers in Human Behavior*, 112, 106468. https://doi.org/10.1016/j.chb.2020.106468.

Saadeh, I.M. & Suifan, T.S. (2020). Job stress and organizational commitment in hospitals: the mediating role of perceived organizational support, *International Journal of Organizational Analysis*, 28(1), pp. 226-242. https://doi.org/10.1108/ijoa-11-2018-1597.

Salman, A., Olawale, Y.A., & Jimoh, A.L., (2024). Job burnout and employee commitment. *Farabi Journal of Social Sciences*. Vol 10(2). https://doi.org/10.26577/FJSS2024.v10.i2.2.

Sharma, I., Tiwari, V., Gupta, S. & Rana, N.P. (2024). Examining the nexus between techno stress and turnover intention: the moderating influence of PsyCap in Indian information management contexts, *Journal of Enterprise Information Management*, Vol. ahead-of-print No. ahead-of-print. https://doi.org/10.1108/JEIM-08-2023-0434.

Stana, R. & Nicolajsen, H.W. (2021). Sociological Mechanisms Behind ICT-Related Technostress in the Workplace, Lee, Z.W.Y., Chan, T.K.H. and Cheung, C.M.K. (Ed.) Information Technology in Organisations and Societies: *Multidisciplinary Perspectives from AI to Technostress, Emerald Publishing Limited, Leeds*, pp. 85-110. https://doi.org/10.1108/978-1-83909-812-320211004.

Tarafdar, M., Tu, Q., Ragu-Nathan, B. S., & Ragu-Nathan, T. S. (2007). The impact of technostress on role stress and productivity. *Journal of Management Information Systems*, 24(1), 301-328. https://doi.org/10.2753/mis0742-1222240109.

Topsakal, Ö. & Irmak, H. (2023). *Technostress and Burnout of Female Employees: A Review of the Healthcare Field in Perspective of Digital Transition*, Akkaya, B., Apostu, S.A., Hysa, E. and Panait, M. (Ed.) Digitalization, Sustainable Development, and Industry 5.0, Emerald Publishing Limited, Leeds, pp. 337-348. https://doi.org/10.1108/978-1-83753-190-520231017.

Yahaya, I.J. Jimoh. A.L., & Ameen, A. (2022). Effect of work-life balance on the performance of female employees of selected banks in Ilorin. *Unizik journal of entrepreneurship (ENTREP)*. 3(2). https://www.unizikentrepjournal.com/journalv3n2. https://doi.org/10.51594/ijmer.v5i3.448.

Yener, S., Arslan, A. & Kilinç, S. (2021). The moderating roles of technological self-efficacy and time management in the techno-stress and employee performance relationship through burnout, *Information Technology & People*, 34(7), pp. 1890-1919. https://doi.org/10.1108/ITP-09-2019- 0462.

Yusoff, W. F. W., Mat, N. B., & Hassan, H. (2016). Human resource management practices and employee engagement: The moderating role of gender. *Asian Social Science*, 12(8), 103–110. https://doi.org/10.5539/ass.v12n8p103.