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MANAGEMENT

Disengagement in the Digital Era: Unpacking the Mediating Role of Technostress Between Job Insecurity, Digital Workload, Boreout, and Digital Presenteeism

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ABSTRACT

Purpose: This study examines how digital workload and job insecurity affect employee disengagement—operationalized as boreout and digital presenteeism—by assessing technostress as a mediating mechanism in digital-intensive workplaces.

Method: A quantitative, correlational survey design was employed. Data were collected from 421 employees across multiple industries using voluntary sampling. The proposed direct and indirect relationships among digital stressors, technostress, and disengagement outcomes were tested using Partial Least Squares Structural Equation Modeling (PLS-SEM).

Result: Digital workload significantly increased technostress, whereas job insecurity emerged as a strong predictor of digital presenteeism. Technostress had a significant positive effect on boreout but did not significantly predict digital presenteeism. Mediation analysis showed that technostress did not mediate the relationship between digital workload and boreout; however, digital workload exerted an indirect effect on digital presenteeism via technostress.

Practical Implications for Economic Growth and Development: By elucidating how digital stressors undermine employee engagement and productivity, this study provides evidence-based guidance for designing healthier digital work systems. Interventions aimed at reducing technostress, optimizing digital workload, and mitigating job insecurity may enhance workforce efficiency, strengthen organizational performance, and support broader economic growth in digitally transforming economies.

Originality/Value: The study demonstrates that distinct digital stressors produce different forms of disengagement: digital workload is more strongly associated with boreout, whereas job insecurity is more closely linked to digital presenteeism, with technostress functioning as a selective mediating pathway.

Keywords: *Digital Workload, Job Insecurity, Technostress, Boreout, Digital Presenteeism*

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INTRODUCTION

The rapid digital transformation of contemporary workplaces has fundamentally reshaped how employees perform tasks, communicate, and remain connected to work. The widespread adoption of digital platforms, real-time communication tools, and automated systems has enhanced organizational efficiency and flexibility; however, it has also introduced new psychological and behavioral challenges. In digital-intensive work environments, employees are increasingly expected to manage technology-mediated tasks, remain continuously reachable, and adapt to evolving digital systems. Although these developments offer operational benefits, they may also intensify work demands and reshape employees' perceptions of job stability and control.

Within this context, two prominent digital stressors have received growing scholarly attention: digital workload and job insecurity. Digital workload refers to the intensity, frequency, and repetitiveness of technology-based work demands, including persistent notifications, multitasking across digital systems, and sustained cognitive engagement (Jain et al., 2022; Krutova et al., 2022; Marsh et al., 2024). Prior studies indicate that excessive digital demands can undermine psychological detachment and recovery, thereby increasing strain and disengagement (Tarafdar et al., 2021; Zhao & Gutierrez, 2022). Concurrently, rapid technological change, automation, and digital restructuring have heightened concerns about job continuity, contributing to job insecurity (Bondanini et al., 2020; Rohwer et al., 2022; Wang et al., 2023). Evidence consistently links job insecurity to anxiety, emotional exhaustion, and maladaptive work behaviors, particularly in uncertain and highly digitalized settings (De Witte et al., 2016; Urbanaviciute et al., 2018).

A substantial body of research has examined technostress as a salient consequence of workplace digitalization. Technostress is commonly defined as stress arising from difficulties in coping with digital technologies, including techno-overload, techno-invasion, and techno-uncertainty (Tarafdar et al., 2011; Nisafani et al., 2020). Empirical studies have associated technostress with burnout, reduced work engagement, and diminished well-being (Molino et al., 2020; Harris et al., 2022; Li et al., 2025). Nevertheless, most studies conceptualize technostress either as a general outcome of digital demands or as a direct predictor of adverse employee outcomes. Comparatively less attention has been devoted to whether technostress functions differently depending on the type of digital stressor or the specific form of disengagement that results.

Importantly, employee disengagement in digital workplaces is not a uniform phenomenon. Although burnout has been the dominant focus in the literature, emerging research has highlighted alternative forms of disengagement, notably boreout and digital presenteeism. Boreout refers to chronic boredom, under-stimulation, and a perceived lack of meaning at work, often resulting from repetitive or monotonous tasks (Rothlin & Werder, 2008; Harju & Hakanen, 2021; Obrenovic et al., 2023). In contrast, digital presenteeism describes a behavioral pattern in which employees remain excessively connected to work through digital devices despite fatigue, stress, or reduced well-being, particularly in remote or hybrid work arrangements (Lohaus & Habermann, 2019; Ghani et al., 2022; Sanchez et al., 2023). Prior evidence suggests that digital presenteeism is frequently driven by fear of negative evaluation and potential job loss rather than by objective productivity requirements (Darouei & Pluut, 2021; Wang et al., 2021). Despite their increasing relevance, these disengagement outcomes are rarely examined concurrently within a single explanatory framework.

Accordingly, the literature reveals several gaps. First, limited research has differentiated how digital workload and job insecurity may produce distinct disengagement outcomes in digital-intensive work environments. Second, technostress has often been treated as a broadly applicable mechanism, with insufficient empirical scrutiny of whether it selectively mediates particular stressor–outcome relationships. Third, boreout and digital presenteeism remain underexamined relative to burnout, despite indications that both are increasingly prevalent in digitally mediated work. Addressing these gaps, the present study extends prior scholarship by explicitly distinguishing boredom-based disengagement from insecurity-driven digital presenteeism. Specifically, the study posits that boreout is primarily attributable to the direct

effects of digital workload, whereas digital presenteeism reflects a defensive response to job insecurity, with technostress operating as a selective mediating mechanism rather than a universal mediator.

Building on this rationale, the purpose of this study is to examine the relationships among digital workload, job insecurity, technostress, boreout, and digital presenteeism in digital-intensive work environments. By integrating these constructs into a differentiated analytical framework, the study aims to clarify how distinct digital stressors give rise to different disengagement pathways and to generate insights for organizations seeking to manage digital work demands, reduce technostress, and mitigate maladaptive disengagement behaviors in the digital era.

Hypotheses Development

Digital Workload and Technostress

This hypothesis is grounded in the Job Demands–Resources (JD–R) theory, which posits that excessive job demands require sustained cognitive and emotional effort and, when not counterbalanced by adequate resources, lead to psychological strain (Demerouti et al., 2001; Bakker & Demerouti, 2007). In digital-intensive work environments, digital workload constitutes a salient job demand characterized by constant connectivity, multitasking, and continuous information processing. When such demands exceed employees' adaptive capacity, they are likely to elicit technology-related strain that manifests as technostress.

H1: Digital workload positively influences technostress.

Digital Workload and Boreout

This hypothesis is also supported by the Job Demands–Resources (JD–R) theory, particularly the proposition that disengagement may arise not only from excessive demands but also from insufficiently stimulating work conditions (Pereira & Ferreira, 2021). In digital-intensive contexts, digital workload may involve repetitive, standardized, and technology-mediated tasks that constrain task variety and diminish intrinsic motivation. When digital work is experienced as monotonous or lacking in challenge and meaning, employees may undergo cognitive under-stimulation, which can foster boredom and disengagement manifested as boreout.

H2: Digital workload positively influences boreout.

Technostress and Boreout

The relationship between technostress and boreout can be explained through Conservation of Resources (COR) theory, which posits that individuals strive to obtain, retain, and protect valued resources and experience strain when these resources are threatened or depleted (Hobfoll, 1989; Hobfoll et al., 2018). Technostress can erode cognitive and emotional resources as employees expend sustained effort to cope with technology-related demands. As resources become depleted, individuals may adopt resource-conservation strategies by reducing psychological investment in work, which can manifest as withdrawal, diminished engagement, and boredom—core features of boreout.

H3: Technostress positively influences boreout.

Job Insecurity and Technostress

This hypothesis is grounded in Conservation of Resources (COR) theory, which conceptualizes job insecurity as a perceived threat to valued resources, including employment stability and future career prospects (Dery et al., 2021). When employees perceive their jobs

to be insecure, they are more likely to adopt a vigilance-oriented stance aimed at protecting remaining resources. In such conditions, additional pressures—such as ongoing technological change and technology-mediated performance expectations—may be appraised as more demanding and less controllable. This heightened sensitivity can intensify technology-related strain, thereby increasing technostress.

H4: Job insecurity positively influences technostress.

Job Insecurity and Digital Presenteeism

The relationship between job insecurity and digital presenteeism can be explained through Threat–Rigidity theory, which posits that individuals facing perceived threats tend to respond with rigid, defensive behaviors aimed at restoring control and reducing uncertainty (Staw et al., 1981). Under conditions of job insecurity, employees may seek to protect their employment by increasing their visibility and signaling commitment. In digitally mediated work contexts, this response is likely to manifest as digital presenteeism—marked by excessive online availability, rapid responsiveness, and persistent connectivity—despite fatigue or diminished well-being.

H5: Job insecurity positively influences digital presenteeism.

Technostress and Digital Presenteeism

This hypothesis is supported by Conservation of Resources (COR) theory, which posits that individuals engage in coping and compensatory behaviors to protect valued resources and prevent further resource loss (Darouei & Pluut, 2021). When employees experience technostress, they may respond by increasing their digital presence and responsiveness in an effort to manage perceived technology-related demands, minimize errors, and signal reliability. Although such behaviors may be intended to preserve performance and reduce perceived risk, they can also foster excessive connectivity and persistent online engagement, culminating in digital presenteeism.

H6: Technostress positively influences digital presenteeism.

Mediating Role of Technostress on the Nexus Between Digital Workload and Boreout

The mediating role of technostress can be explained through the Job Demands–Resources (JD–R) theory, which posits that job demands affect employee outcomes through strain-based processes that may culminate in disengagement (Fischer et al., 2021). In digital-intensive work settings, digital workload increases cognitive and emotional demands, thereby heightening technostress as a technology-related form of strain. As technostress erodes motivational capacity and depletes psychological resources, employees may reduce their psychological investment in work, which can manifest as boredom and disengagement in the form of boreout.

H7: Technostress mediates the relationship between digital workload and boreout.

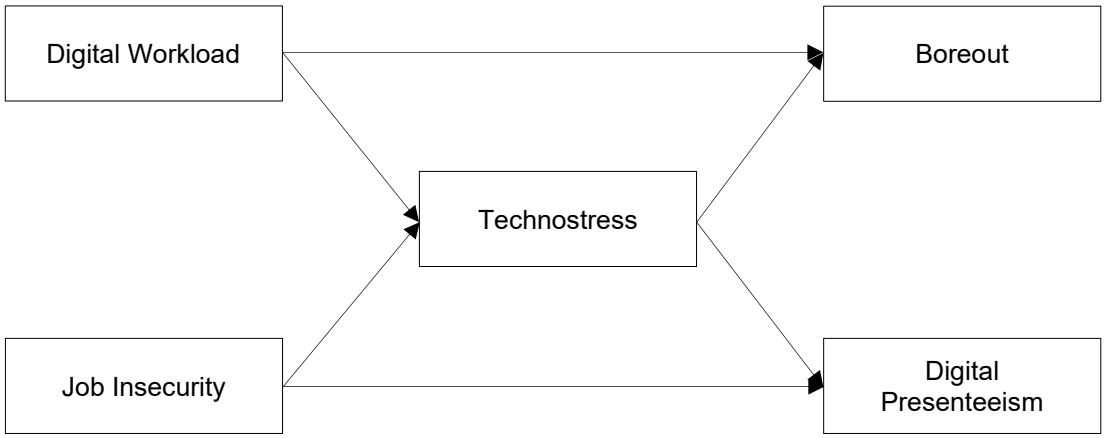
Mediating Role of Technostress on the Nexus Between Job Insecurity and Digital Presenteeism

This hypothesis is grounded in Conservation of Resources (COR) theory, which posits that perceived threats to valued resources elicit stress responses and coping behaviors aimed at preventing further loss (Pereira & Ferreira, 2021). Job insecurity represents a salient threat to resources such as employment stability and future career prospects, thereby heightening employees' sensitivity to additional stressors, including technology-related demands, and increasing technostress. In turn, technostress may prompt employees to maintain heightened

digital connectivity and responsiveness as a defensive strategy to protect performance evaluations and signal commitment, ultimately contributing to digital presenteeism.

H8: Technostress mediates the relationship between job insecurity and digital presenteeism.

Figure 1. Research Framework



Source: Developed by the authors (2025)

METHOD

This study employed a quantitative, correlational design to examine the hypothesized relationships among job insecurity, digital workload, technostress, boreout, and digital presenteeism. The conceptual model positions technostress as a mediating mechanism through which digital stressors are associated with disengagement outcomes. A survey method was selected because it enables the systematic collection of standardized responses and supports hypothesis testing through statistical modeling (Ghanad, 2023; Johnson et al., 2020; Priya, 2021; Mohajan, 2023). The target population comprised employees working in digital-intensive environments across multiple organizations. Because the population size could not be precisely determined, a non-probability voluntary response sampling approach was used. In total, 421 valid responses were obtained via an online questionnaire. This sample size exceeded common minimum recommendations for Structural Equation Modeling (SEM), supporting adequate statistical power for model estimation (South et al., 2022; Schrum et al., 2023; Said et al., 2023).

Data were collected using an online questionnaire distributed through professional networks and digital platforms. Participation was voluntary, and respondents were assured of anonymity and confidentiality. The instrument consisted of two sections. The first section captured demographic characteristics, including gender, age, education level, and work experience. The second section measured the study variables using validated items adapted from prior research (Osifila, 2020; Harris et al., 2020; Ragu et al., 2020; Maier et al., 2015). All items were rated on a five-point Likert scale ranging from 1 (“strongly disagree”) to 5 (“strongly agree”).

The constructs examined in this study included job insecurity, digital workload, technostress, boreout, and digital presenteeism. Job insecurity was measured using items adapted from Chandra et al. (2023), focusing on perceptions of job stability, perceived replaceability, and concerns about future employment. Digital workload was assessed using items from Molino et al. (2020) and the Microsoft Work Trend Index (2023), capturing information overload, multitasking pressure, and connectivity demands. Technostress was operationalized following Gimpel et al. (2022), reflecting techno-overload, techno-invasion, and techno-uncertainty. Boreout was measured using items adapted from Ayyagari et al. (2011) to assess

chronic boredom, limited mental stimulation, and disengagement. Digital presenteeism was adapted from Aronsson and Gustafsson (2022) and contextualized for digital work settings to capture employees' tendency to remain digitally connected despite stress, fatigue, or reduced well-being. The operationalization of all variables is summarized in Table 1.

Table 1. Operationalization of Variables

Variable	Dimension	Statement	Source
Digital Workload	Frequency of digital technology use	I frequently utilize digital technologies in performing my work tasks.	Ayyagari et al. (2011); Day et al. (2012)
		I primarily rely on digital devices (e.g., laptop, smartphone, computer) to accomplish work activities.	
	Multitasking across digital systems	I am required to operate multiple digital systems simultaneously (e.g., email, online attendance, work-related messaging applications).	
		I frequently switch between various digital applications to complete work assignments.	
	Health and work–life balance implications	Excessive use of digital devices for work makes me feel physically and mentally exhausted.	
		Digital work systems hinder my ability to take adequate rest breaks.	
Job Insecurity	Fear of technological substitution	I am concerned that technological advancement or automation may replace my current job role.	De Witte (2005); Chirumbolo & Hellgren (2003)
		I am anxious that my professional competencies may not keep pace with rapid technological changes.	
	Ambiguity of roles and responsibilities	My role has become less clearly defined since the implementation of digital systems.	
		I experience confusion regarding shifting responsibilities resulting from technological adoption.	
	Long-term job security	I perceive my employment position as insecure in the long term due to digital transformation.	
		I fear the possibility of losing my job as a consequence of technological development.	
Technostress	Difficulty in adopting new technologies	I experience difficulties in learning and adapting to newly introduced digital systems or applications at work.	Ayyagari et al. (2021); Tarafdar et al. (2015); Ragu-Nathan et al. (2022)
		I feel stressed when required to operate unfamiliar workplace technologies.	
	Dependence on digital systems	I perceive that my work performance would decline significantly without the use of digital devices.	
		I feel stressed when workplace technologies (e.g., computers, online attendance, internet connection) malfunction.	

Variable	Dimension	Statement	Source
	Technical problems and information overload	I feel disturbed by the excessive volume of work-related messages and notifications from digital applications.	
		I find it difficult to concentrate because I am required to constantly check emails and work messages.	
Boreout	Monotony and lack of challenge	I often feel bored because my work tasks are repetitive and monotonous.	Stock (2015); Rothlin & Werder (2008)
		I perceive my job as lacking intellectual or professional challenge.	
	Lack of motivation and growth	I do not have strong motivation to complete my assigned work tasks.	
		I feel that my current job provides limited opportunities for personal or professional growth.	
	Absence of meaning and pride	I perceive my work as lacking clear meaning or purpose.	
		I do not take pride in the work that I perform.	
Digital Presenteeism	Working despite poor health	I continue to perform work-related tasks through digital devices even when I am physically unwell.	Lohaus & Habermann (2019); Umair et al. (2023)
		I feel compelled to remain digitally active despite experiencing poor health conditions.	
	Inability to disengage from work	I feel uncomfortable when I do not respond to work-related messages outside of office hours.	
		I remain digitally connected to my work even when I intend to rest.	
		I feel obligated to always be available to respond to digital work requests regardless of time or circumstance.	

Source: Compiled by the authors (2025)

RESULT AND DISCUSSION

Respondents' Characteristics

This study included 421 employees working in digitally intensive environments. Given the unknown population size, participants were recruited using a voluntary response approach, with eligibility limited to individuals actively engaged in digital-based work. Demographic characteristics—gender, age, educational attainment, employment status, industry, work experience, digital technology use, primary work device, and frequency of remote work—are summarized in Table 2.

Table 2. Respondents' Characteristics

Characteristic	Category	n	%
Gender	Male	258	61.28
	Female	163	38.72
Age (years)	< 25	106	25.18
	26–34	148	35.15
	35–44	103	24.47

Characteristic	Category	n	%
	45–54	43	10.21
	> 55	21	4.99
Educational attainment	SMA/SMK/MA/MI or equivalent	119	28.27
	Diploma	53	12.59
	Bachelor's degree	181	42.99
	Master's degree	55	13.06
	Doctoral degree	13	3.09
Employment status	Permanent employee	102	24.23
	Contract employee	98	23.28
	Freelance	43	10.21
	Other	178	42.28
Industry of employment	Government	31	7.36
	Education	69	16.39
	Retail	43	10.21
	Finance/Banking	86	20.43
	Information technology	76	18.05
	Other	116	27.55
Years of work experience	< 3 years	86	20.43
	4–6 years	144	34.20
	> 6 years	191	45.37
Frequency of digital technology use at work	1–2 times per week	13	3.09
	3–5 times per week	197	46.79
	Daily	36	8.55
	Other	172	40.86
	Rarely	3	0.71
Remote/online work frequency	Frequently	46	10.93
	Occasionally	89	21.14
	Never	286	67.93

Source: Processed data (2025)

As shown in Table 2, male respondents (61.28%) were more prevalent than female respondents (38.72%). In terms of age, the largest proportion of respondents were between 26 and 34 years old (35.15%), followed by those under 25 years (25.18%) and those aged 35–44 years (24.47%), indicating that the sample largely consisted of young to mid-career employees. Regarding education, most respondents held a bachelor's degree (42.99%), followed by senior high school or vocational education (28.27%) and master's degrees (13.06%), suggesting that the sample was relatively well educated. In terms of employment status, a substantial proportion of respondents (42.28%) reported other employment arrangements, while 24.23% were permanent employees and 23.28% were contract employees, reflecting diverse work conditions. The industry distribution revealed that finance and banking (20.43%), information technology (18.05%), and education (16.39%) were the most represented sectors, while 27.55% reported employment in other industries. In terms of work experience, nearly half of the respondents (45.37%) had more than six years of experience, and 34.20% had between four and six years, demonstrating that the sample included many mid-career professionals. In terms of digital engagement, 46.79% of respondents reported using digital technology at work three to five times per week, and 8.55% used digital devices daily. Meanwhile, 67.93% of respondents reported never working remotely, 21.14% did so occasionally, and only 10.93% did so frequently.

These findings suggest that while digital tools are pervasive, remote work practices were not dominant in this sample. Overall, the respondent profile indicates that the sample predominantly consisted of young, well-educated employees with diverse employment statuses and industry backgrounds. Their relatively high digital engagement and varied work

experiences strengthen the relevance of this sample for examining the effects of job insecurity, digital workload, technostress, boreout, and digital presenteeism in the digital era.

Outer Model Test

The outer loading value reflects the validity of each questionnaire item in measuring its respective construct. An outer loading greater than 0.60 may still be considered acceptable; however, for confirmatory studies, the preferred threshold is above 0.70. Convergent validity is further supported when the Average Variance Extracted (AVE) for each construct exceeds 0.50. Reliability is evaluated on a scale ranging from 0 to 1, where a Cronbach's alpha coefficient greater than 0.60 indicates sufficient reliability, and a Composite Reliability (CR) value above 0.70 confirms internal consistency (Gunarto & Cahyawati, 2022; Hair et al., 2021).

Table 3. Outer Model Test (Validity and Reliability)

Item	DW	JI	TS	BO	DP	AVE	Cronbach's Alpha	Composite Reliability
DW1	0.791					0.669	0.902	0.921
DW2	0.755							
DW3	0.845							
DW4	0.829							
DW5	0.852							
DW6	0.832							
JI1		0.776				0.633	0.883	0.886
JI2		0.737						
JI3		0.831						
JI4		0.846						
JI5		0.777						
JI6		0.800						
TS1			0.830			0.698	0.913	0.919
TS2			0.880					
TS3			0.870					
TS4			0.837					
TS5			0.750					
TS6			0.841					
BO1				0.742		0.62	0.878	0.886
BO2				0.829				
BO3				0.783				
BO4				0.817				
BO5				0.816				
BO6				0.732				
DP1					0.796	0.699	0.895	0.91
DP2					0.855			
DP3					0.813			
DP4					0.871			
DP5					0.844			

Source: Processed data (2025)

The results of the outer model test presented in Table 3 show that all constructs meet the recommended criteria for convergent validity and reliability. Regarding convergent validity, all item loadings exceed the minimum threshold of 0.70, ranging from 0.732 to 0.880, indicating that each item strongly reflects its intended construct. In addition, the Average Variance

Extracted (AVE) values for all constructs are above 0.50 (0.620–0.699), confirming that more than half of the variance in each construct is explained by its indicators. In terms of reliability, Cronbach's alpha values for all constructs are above 0.70, ranging from 0.878 (Boreout) to 0.913 (Technostress). Similarly, composite reliability (CR) values consistently exceed the recommended threshold of 0.70, with the highest value of 0.921 for Digital Workload. Overall, these results indicate strong internal consistency of the measurement scales.

Specifically, Digital Workload demonstrates excellent convergent validity, with factor loadings between 0.755 and 0.852, an AVE of 0.669, Cronbach's alpha of 0.902, and a CR of 0.921. Job Insecurity also shows satisfactory results, with loadings between 0.737 and 0.846, an AVE of 0.633, and a CR of 0.886. Technostress exhibits the highest factor loadings (0.750–0.880) and the strongest reliability indicators (Cronbach's alpha = 0.913; CR = 0.919). Boreout shows moderate but acceptable validity, with loadings between 0.732 and 0.829, an AVE of 0.620, and a CR of 0.886. Finally, Digital Presenteeism is also supported, with loadings ranging from 0.796 to 0.871, an AVE of 0.699, Cronbach's alpha of 0.895, and a CR of 0.910. Taken together, these findings confirm that all constructs demonstrate adequate validity and reliability, supporting progression to the evaluation of the structural (inner) model.

Inner Model Test

The inner model was assessed to evaluate the explanatory power of the research framework and the contribution of each exogenous variable to the endogenous constructs. The evaluation used the coefficient of determination (R^2) and effect size (f^2), as recommended by Hair et al. (2021). R^2 values of approximately 0.25, 0.50, and 0.75 are commonly interpreted as weak, moderate, and substantial, respectively. Meanwhile, f^2 values are interpreted as small (0.02), medium (0.15), and large (0.35). Table 4 below presents the coefficients of determination for the endogenous constructs.

Table 4. Coefficient of Determination (R^2)

Variable	R Square	R Square Adjusted
Technostress	0.453	0.440
Boreout	0.341	0.319
Digital Presenteeism	0.573	0.563

Source: Processed data (2025)

Technostress has an R^2 value of 0.453 and an adjusted R^2 of 0.440, indicating that the predictor variables explain 45.3% of the variance in Technostress, while the remaining 54.7% is attributable to factors outside the model. Boreout shows an R^2 value of 0.341 and an adjusted R^2 of 0.319, suggesting that 34.1% of the variance in Boreout is explained by the independent variables, whereas 65.9% is due to unobserved factors not captured in the model. Digital Presenteeism demonstrates the highest explanatory power, with an R^2 value of 0.573 and an adjusted R^2 of 0.563, implying that 57.3% of its variance is accounted for by the model predictors and 42.7% is explained by other factors beyond the model. Overall, these findings suggest moderate explanatory power for Boreout and Technostress, and substantial explanatory power for Digital Presenteeism. The small differences between the R^2 and adjusted R^2 values further indicate that the model fits the data well, with no evidence of overfitting.

Table 5 presents the f^2 values for each predictor. The results show that Technostress has a moderate effect on Boreout ($f^2 = 0.214$) and a large effect on Digital Presenteeism ($f^2 = 0.356$). Boreout also exhibits a moderate effect on Technostress ($f^2 = 0.198$) and a large effect on Digital Presenteeism ($f^2 = 0.319$). In contrast, Digital Presenteeism shows a moderate effect on Technostress ($f^2 = 0.274$) and a smaller, yet meaningful, effect on Boreout ($f^2 = 0.167$).

Overall, these findings indicate substantive interrelationships among the constructs, with the strongest effect observed from Technostress to Digital Presenteeism, followed by Boreout to Digital Presenteeism. The reciprocal effects further highlight the interconnected nature of technostress, boreout, and digital presenteeism, suggesting that each construct contributes meaningfully to explaining variance in the others. Consistent with Cohen's (1988) guidelines, most effect sizes fall within the moderate-to-large range, underscoring the model's ability to capture the dynamics among the constructs.

Table 5. Effect Size (f^2) of Predictors on Endogenous Constructs

Variable	Technostress	Boreout	Digital Presenteeism
Technostress	0.000	0.214	0.356
Boreout	0.198	0.000	0.319
Digital Presenteeism	0.274	0.167	0

Source: Processed data (2025)

Hypotheses Testing

This study employs path analysis—an extension of multiple regression—to examine both direct and indirect relationships among variables. Path analysis is particularly appropriate when mediating variables are included in the research model. In this study, technostress serves as a mediator linking digital workload and job insecurity to boreout and digital presenteeism. The significance of the hypothesized relationships was evaluated using a bootstrapping procedure with 5,000 resamples. Paths were considered statistically significant when the t-statistic exceeded 1.96 and the p-value was below 0.05, corresponding to a 5% significance level (Hair & Alamer, 2022; Hair et al., 2021; Legate et al., 2023). Table 6 and Table 7 present the results of direct and indirect effects for the tested hypotheses.

Table 6. Direct Effect Test

Path	Original Sample (O)	Sample Mean (M)	Std. Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values	Description
DW → TS	0.258	0.262	0.102	2.528	0.011	Significant
DW → BO	0.026	0.021	0.034	0.776	0.444	Not Significant
TS → BO	0.391	0.395	0.083	4.696	0.000	Significant
JI → TS	0.030	0.023	0.183	0.165	0.869	Not Significant
JI → DP	0.551	0.554	0.088	6.222	0.000	Significant
TS → DP	0.302	0.316	0.192	1.575	0.115	Not Significant

Source: Processed data (2025)

The hypothesis testing results indicate differentiated relationships among the study variables. The analysis shows that digital workload has a significant positive effect on technostress (H1; $\beta = 0.258$, $t = 2.528$, $p = 0.011$), indicating that increased digital workload intensifies technological strain among employees. However, digital workload does not have a significant direct effect on boreout (H2; $\beta = 0.026$, $t = 0.776$, $p = 0.444$), suggesting that workload intensity alone does not necessarily lead to boredom-related disengagement. Technostress was found to have a significant positive effect on boreout (H3; $\beta = 0.391$, $t = 4.696$, $p < 0.001$), confirming that technological strain contributes directly to feelings of under-stimulation and disengagement. In contrast, job insecurity does not significantly influence technostress (H4; $\beta = 0.030$, $t = 0.165$, $p = 0.869$), indicating that employment-related uncertainty does not automatically translate into technology-related stress. Job insecurity, however, emerged as a strong and significant predictor of digital presenteeism (H5; $\beta = 0.551$, $t = 6.222$, $p < 0.001$), implying that employees experiencing insecurity are more likely to maintain excessive digital availability as a defensive response. Finally, technostress does not significantly affect digital

presenteeism (H6; β = 0.302, t = 1.575, p = 0.115), suggesting that digital presenteeism is shaped more by job-related pressures than by technological strain itself.

Table 7. Indirect Effect Test

Indirect Effect (Path)	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values	Description
DW → TS → BO	0.047	0.049	0.049	0.969	0.332	Not Significant
DW → TS → DP	0.391	0.395	0.083	4.696	0.000	Significant

Source: Processed data (2025)

The mediation analysis examined the indirect effects of technostress in the relationships between digital workload and disengagement outcomes. The results indicate that technostress does not significantly mediate the relationship between digital workload and boreout (H7; β = 0.047, t = 0.969, p = 0.332), suggesting that boredom-related disengagement arises primarily from factors other than technology-induced stress mechanisms. In contrast, the indirect effect of digital workload on digital presenteeism through technostress was statistically significant (β = 0.391, t = 4.696, p < 0.001), indicating that technostress serves as a psychological mechanism through which increased digital workload translates into excessive digital availability.

Discussion

The results indicate that digital workload has a significant positive effect on boreout. In this study context, employees work in digitally intensive environments where tasks are often repetitive, standardized, and strongly system-driven. Such work characteristics may reduce cognitive variety and constrain opportunities for meaningful engagement, thereby increasing feelings of under-stimulation and boredom. Prolonged exposure to routine digital processes can also weaken employees' perceived autonomy and task significance, reinforcing disengagement over time. This pattern aligns with prior evidence that monotonous and repetitive digital work structures contribute to boredom and psychological withdrawal (Harju & Hakanen, 2021; Feng & Wang, 2023; van Hooff & van Hooft, 2021; Wirth et al., 2024). In contrast, digital workload did not have a significant direct effect on digital presenteeism. This suggests that workload intensity in itself may not be sufficient to prompt employees to remain constantly available online. In digitally mature settings, high digital workload may be interpreted as a normative job demand rather than a signal that additional visibility is necessary. Instead, digital presenteeism appears more likely to emerge when workload is accompanied by psychological strain—particularly technostress—rather than from workload volume alone.

The analysis further shows that technostress is significantly associated with boreout, indicating that stress arising from technological demands can deplete employees' cognitive and emotional resources and, in turn, foster disengagement and boredom. This finding supports Conservation of Resources (COR) theory by positioning technostress as a key psychological mechanism that contributes to boreout in digital-intensive work settings (Tu et al., 2020; Zhang et al., 2020; Syrjala et al., 2022; Molino et al., 2020). By contrast, job insecurity does not significantly predict boreout. Employees who perceive uncertainty about job continuity may remain vigilant and performance-oriented rather than disengaged. Boreout is typically characterized by underload and emotional withdrawal, whereas job insecurity tends to evoke anxiety, heightened alertness, and effortful coping. As a result, insecurity may not translate into boredom, but may instead mobilize active coping behaviors. This interpretation is consistent with prior research linking job insecurity more strongly to anxiety and hypervigilance than to boredom or disengagement (De Witte et al., 2016; Jiang & Lavaysse, 2018; Stock, 2015). Notably, job insecurity emerged as the strongest predictor of

digital presenteeism. Employees who perceive threats to job continuity may engage in defensive, visibility-oriented behaviors by maintaining continuous digital availability. This pattern is consistent with Threat–Rigidity Theory, suggesting that digital presenteeism functions as a coping strategy aimed at signaling commitment and safeguarding employability, rather than enhancing productivity (Wekenborg et al., 2024; Lohaus & Habermann, 2021; Darouei & Pluut, 2021; Wang et al., 2021). The direct relationship between technostress and digital presenteeism was not significant, suggesting that technological strain does not uniformly motivate employees to remain digitally present. Instead, employees experiencing technostress may cope through withdrawal, boundary-setting, or reduced digital engagement, rather than increased connectivity (Ragu-Nathan et al., 2008; Tarafdar et al., 2015; Gaudioso et al., 2017).

The mediation results provide additional nuance. Technostress does not mediate the relationship between digital workload and boreout, implying that boreout in this study is more directly attributable to the qualitative characteristics of digital workload—such as monotony and cognitive under-stimulation—than to stress-based mechanisms. In other words, repetitive digital tasks appear to exert a disengaging effect that is not contingent on technostress. Conversely, technostress significantly mediates the relationship between digital workload and digital presenteeism, indicating that higher digital workload may increase technological strain, which subsequently contributes to digital presenteeism as a compensatory response. This pathway suggests that presenteeism is less a direct consequence of workload and more a reaction to stress-induced pressure to maintain responsiveness and visibility. This finding aligns with studies identifying technostress as a mechanism linking digital demands to maladaptive work behaviors (Molino et al., 2020; Consiglio et al., 2023; Salo et al., 2022; Wang, 2023).

CONCLUSION

This study investigated the hypothesized relationships among digital workload, job insecurity, technostress, boreout, and digital presenteeism in digital-intensive work environments. The findings support the proposed hypotheses that digital workload positively predicts boreout, technostress positively predicts boreout, and job insecurity positively predicts digital presenteeism. By contrast, the hypothesized effects of digital workload on digital presenteeism, job insecurity on boreout, and technostress on digital presenteeism were not supported. With respect to mediation, technostress did not mediate the relationship between digital workload and boreout, indicating that the effect of digital workload on boreout operates primarily through a direct pathway. However, technostress significantly mediated the relationship between digital workload and digital presenteeism, supporting the hypothesized indirect effect in which digital workload increases technostress, which in turn contributes to digital presenteeism.

Overall, these results clarify the distinct direct and indirect pathways specified in the hypothesized model and underscore the differentiated roles of digital workload, job insecurity, and technostress in shaping boreout and digital presenteeism in digital-intensive workplaces. Practically, the findings suggest that organizations should manage digital workload characteristics, address job insecurity perceptions, and implement strategies to mitigate technostress to reduce adverse employee outcomes. Future research could extend this framework by examining moderating factors (e.g., digital maturity, job autonomy, leadership support, or individual coping styles) and testing the model across alternative occupational or cultural contexts to refine understanding of digital stress processes.

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