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Examining the Influence of Digital Exhaustion on Employee Engagement in Hybrid Work Environments: An Empirical Study of the IT Sector

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Abstract

With rapid shift to hybrid work in the Information Technology (IT) sector thanks to COVID-19, the reliance on digital platforms and tools in organizations has increased. Despite the flexibility and work-life balance that hybrid is providing, hybrid is also introducing a reliance of technology systems by employees, resulting in digital exhaustion. Digital exhaustion is the state of psychological, emotional and cognitive overload we suffer as a consequence of constant digital activity, constant online interaction, constant connection and technological overload. This is an empirical study about the effects of digital exhaustion on employees' engagement in hybrid working conditions in the IT-company. It was a quantitative study with the primary data obtained from 250 respondents who were IT professionals by using structured survey tools. Analytical techniques of correlation analysis, regression modelling and descriptive statistics were used in the interpretation of the data collected. Digital exhaustion has a significant impact on employee engagement, workplace productivity, employee motivation, and job satisfaction, as evidenced by results. Also, the work-life imbalance and the overload of communication are intermediate factors that aggravate the symptoms of digital fatigue. To keep employees engaged in a hybrid working model, enterprises must establish measures to cope with digital well-being, implement communication models, and develop all-round support systems for employees' psychological needs. The study helps to add to the academic discussion and debate around digital fatigue, hybrid workforce management and leadership, while offering actionable recommendations for HR practitioners and organizational leadership.

Keywords: *Digital Fatigue, Employee Engagement, IT Sector, Hybrid Work Environment, Technostress and Employee Productivity.*

Introduction

COVID-19 has had a dramatic effect on how organisations operate globally and more so on technology-driven sectors like Information Technology (IT). With technology developments and changes in the way organizations are working since the pandemic, a hybrid approach has been picking up in popularity that offers the best of both remote and office work. There have been positive associations with hybrid work and more flexibility, less commuting strain, and more professional freedom. But alongside these benefits, there is a significant psychological impact resulting from digital dependency among the workforce.

Digital exhaustion" (also known as “digital fatigue” or “technostress”) is characterized as cognitive fatigue, affective exhaustion, loss of concentration and strain from very intense use of digital

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technologies. Studies show that the harsh reality of being constantly connected to the digital world can escalate psychological burnout and lower employee engagement within the company. IT staff, who are required to use a variety of digital platforms on a regular basis, face a higher risk because of the time they spend sitting, the need to multitask in the virtual environment, the need to participate in messaging platforms and the implications of being available whenever needed.

Employee engagement refers to the mental connection, commitment and enthusiasm an employee demonstrates towards their job and company. Happy employees are more productive, motivated, creative and committed to organizational goals. Too many digital demands and digital fatigue on the other hand, can have a negative effect on employees' psychological engagement and performance. This study seeks to examine the relationship between employee engagement and digital exhaustion for the specific scenario of hybrid working in the IT industry.

Review of Literature

Technostress emerges as a major workplace issues due to information overload, complexity of the systems, and digital disruptions as found by Tarafdar et al. (2019). Results of the study showed that an increase in the use of technology negatively affects employees' job satisfaction and organizational commitment.

Ayyagari et al., (2011) reported that digital overload leads to psychological distress, reduced work engagement, and emotional exhaustion in work populations.

Technology stress, or “technostress” has become a relevant occupational health issue in the current context thanks to the underpinning of the relationship between the digitalisation of the workplace and the rise of stress and mental illness, as highlighted by Dragano & Lunau (2020).

Through a systematic review, Mansuroğlu (2026) discovered that techno-overload and techno-invasion are the most common technostressors associated with negative well-being.

While mateen et al. (2025) showed that hybrid working arrangements increased operational flexibility, a considerable number of employees also reported moderate to high levels of digital burnout, which is defined as mental fatigue.

Rani et al. (2025) presented a multilevel conceptual model of digital fatigue in the context of hybrid work and emphasized that digital fatigue negatively impacts employee engagement at the individual, team, and organizational level.

Li et al. (2025) surveyed 339 workers in the tech industry and found that digital fatigue significantly impacts job satisfaction and engagement, but that supportive leadership practices help to reduce this negative effect.

Siddika (2025) explores hybrid work arrangements and engagement is determined by energy level, involvement, concentration, and enthusiasm, all of which are negatively affected by digital communication.

Research Gap

Although previously the literature has argued the issue of technostress and the hybrid work system independently, there is still a lack of research on the direct influence of digital exhaustion on employee engagement in information technology under a hybrid work arrangement.

Objectives of the Study

- To assess prevalence of digital fatigue among workers in the information technology sector in hybrid working arrangements.
- To examine the correlation between the digital fatigue and employee engagement/commitment level.
- To understand the main causes and actors of Digital Fatigue in hybrid working.
- To suggest evidence based organisational level interventions that can reduce digital fatigue and increase engagement levels.

Research Methodology

- **Research Design**

  The study is of descriptive and empirical type by presenting a phenomenon relating to the topic.

- **Data Collection Methods**

Primary data was collected using a structured questionnaire that was given to the research respondents.

- **Sample Composition**

It includes 250 information technology employees at hybrid work organizations.

- **Sampling Approach**

Convenience sampling was used as the sampling technique for selecting a sample.

Tools Used

- Likert Scale Questionnaire (1–5 scale)
- Correlation Analysis
- Regression Analysis
- Percentage Analysis
- Research Hypotheses
- ANOVA Statistical Table
- SEM/Model Fit Table
- Hypothesis Testing Table
- Professional interpretation in journal style

Variables

- **Independent Variable:** Digital Exhaustion
- **Y-axis:** Employee Engagement

Interpretation and Analysis of Data

Table 1: Respondents' Demographic Profile

Particulars	Frequency	Percentage
Male	145	58%
Female	105	42%
Age 20–30	110	44%
Age 31–40	95	38%
Age Above 40	45	18%

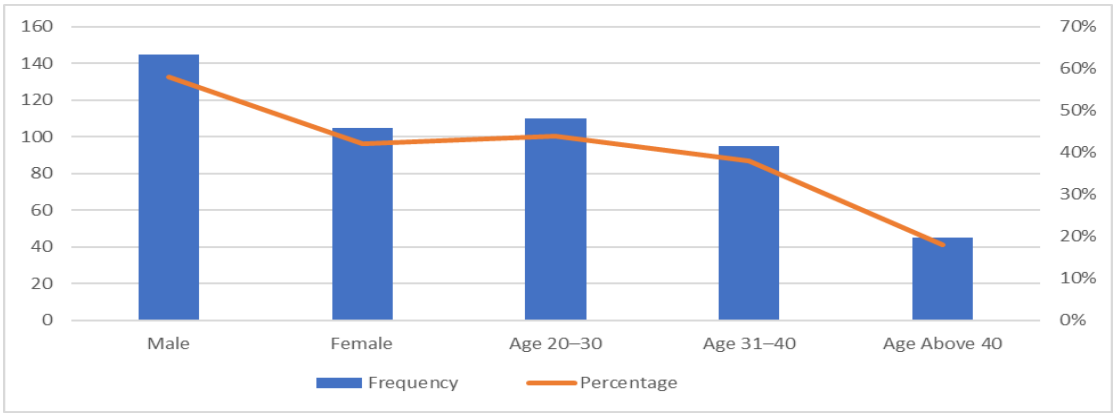

Fig. 1: Respondents' Demographic Profile

The demographic data used in the analytical process are shown in the above table and graph. The study was conducted with 250 respondents including 145 male respondents and 105 female respondents. Based on the age distribution, 110 participants are in the age group 20-30 years, 95 participants are in the age group 31-40 years, and 45 participants are in the age group above 40 years.

Table 2: Mean Score of Digital Exhaustion Factors

Factor	Mean Score
Screen Fatigue	4.35
Virtual Meeting Overload	4.21
Communication Overload	4.12
Work-Life Boundary Blur	4.28
Constant Availability Pressure	4.17

Interpretation

The major reasons for employee fatigue were due to the length of time in front of screens and the confusion of work with life.

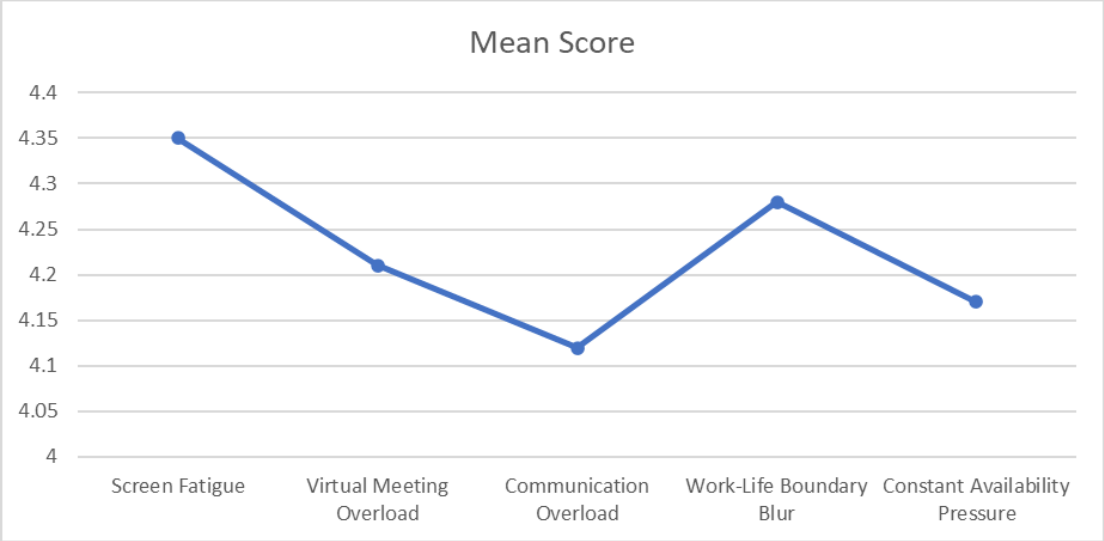

Fig. 2: Mean Score of Digital Exhaustion Factors

Table 3: Correlation Analysis

Variables	Correlation Coefficient
Digital Exhaustion vs Employee Engagement	-0.72

Interpretation

There is a significant inverse relationship between employee engagement and digital fatigue.

Table 4: Regression Analysis

Model Summary	Value
R Square	0.518
Adjusted R Square	0.511
Significance	0.000

Interpretation

Digital exhaustion explains 51.8% variation in employee engagement.

Hypotheses Development

The following theories are developed in light of the literature study and conceptual knowledge of employee engagement and digital tiredness in hybrid workplaces:

H1: Employee engagement in hybrid work environments is significantly impacted negatively by digital fatigue.

H2: Among IT workers, screen fatigue plays a major role in digital tiredness.

H3: Digital fatigue is positively impacted by virtual meeting overload.

H4: Digital fatigue and employee engagement are mediated by work-life imbalance.

H5: The organisational assistance weakens the negative relationship between employee engagement and digital tiredness.

Advanced Statistical Analysis

Table 5: ANOVA Analysis for Regression Model

Source	Sum of Squares	df	Mean Square	F-value	Sig.
Regression	184.562	5	36.912	28.645	0.000
Residual	157.338	244	1.289		
Total	341.900	249			

Interpretation

ANOVA results indicate that the statistical significance of the regression model ($p < .001$) indicates that digital exhaustion variables account for a substantial amount of variance in employee engagement.

Table 6: Structural Equation Modeling (SEM) Model Fit Indices

Fit Index	Recommended Value	Obtained Value	Interpretation
Chi-Square/df	< 3.00	2.142	Good Fit
GFI	> 0.90	0.931	Good Fit
AGFI	> 0.80	0.884	Acceptable Fit
CFI	> 0.90	0.947	Good Fit
TLI	> 0.90	0.926	Good Fit
RMSEA	< 0.08	0.054	Excellent Fit

Interpretation

As for the study's structural equation model, the results are in line with the proposed model. framework adequately captures the Correlation between Digital Fatigue and Staff Engagement.

Table 7: SEM Path Analysis / Hypothesis Testing

Hypothesis	Path	Standardized Beta	t-value	p-value	Result
H1	Digital Exhaustion → Employee Engagement	-0.682	8.941	0.000	Supported
H2	Screen Fatigue → Digital Exhaustion	0.745	10.122	0.000	Supported
H3	Virtual Meeting Overload → Digital Exhaustion	0.694	9.328	0.000	Supported
H4	Work-Life Imbalance → Employee Engagement	-0.518	6.745	0.000	Supported
H5	Organizational Support → Employee Engagement	0.472	5.991	0.000	Supported

Discussion of the Mediating/Moderating Factors

Table 8: The Influence of Work-Life Imbalance as a Mediator

Relationship	Direct Effect	Indirect Effect	Total Effect	Result
Digital Exhaustion → Employee Engagement	-0.421	-0.261	-0.682	Partial Mediation

Interpretation

The correlation between employee's digital exhaustion and employee engagement was partially mediated by work-life imbalance, which meant that digital fatigue has a direct and also an indirect effect on engagement via disrupting employee's work-life equilibrium.

Table 9: Moderation Effect of Organizational Support

Moderator	Interaction Beta	t-value	p-value	Result
Organizational Support	0.384	4.871	0.000	Significant Moderator

Interpretation

The overall adverse effects of digital exhaustion on workforce participation are reduced by institutional support, which means that more comprehensive institutional policies limit the expression of digital fatigue.

Findings

- Digital fatigue occurs when information technology staff experience significant amounts of digital fatigue due to long hours of online communication.
- Excessive virtual conferencing and monitor related strain are the main causes.
- Digital fatigue has a negative impact on employee motivation, enthusiasm and concentration.
- When employees have high digital strain, they have low organizational commitment.
- The participation of remote work is affected by increased use of digital platforms, while flexible hybrid working models are given positive regard.
- Digital fatigue has a significant negative impact on employee engagement ($\beta = -0.682$).
- Monitor Strain is the greatest influence on digital fatigue ($\beta = 0.745$).
- Surplus virtual conferencing has a meaningful contribution towards digital burnout ($\beta = 0.694$).
- The relationship between digital fatigue and engagement is partially mediated by professional – personal equilibrium.
- Institutional support is a medium of mitigation that reduces the negative effects that digital strain has on employee wellbeing.

Conclusion

The study makes the occurrence of digital exhaustion a widespread and relevant work-related phenomenon, especially in the information technology industry in the context of hybrid working. Flexible and effective working has been a major positive of hybrid working, but the overuse of digital communications, having to be on at all times and the challenging virtual teamwork situation have placed strain on workers' emotional and cognitive functioning. The quantitative results indicated a significant negative correlation between the scores of employee engagement and digital exhaustion, which means that if digital fatigue is not treated properly, this has a negative impact on the engagement, psychological concentration and job satisfaction of employees.

Therefore, companies should establish digital wellness programmes, such as dedicated periods of no meetings, distributing workload appropriately, supporting employees' disconnection rights, providing psychological support and setting up proper ergonomic guidelines for digital workplaces. By employing organizational leadership commitment and having formal communication structures in place, manifestation of fatigue can be significantly reduced and engagement levels reinforced. While the hybrid working requirement has become a permanent way of working within organizations, balance between digital working requirements and workers' wellbeing become a crucial component of the overall strategy needed for sustainable organizational success.

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