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Technostress Levels of IT Sector Employees in the Remote Working Model: A Study on Indian IT Sector

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Abstract
The rapid shift of companies moving to working from home and depending on remote work tools now more than ever, in an effort to maintain business continuity, especially during world wide spread of COVID-19. Technology has become a lifeline that helps organizations and teams stay connected, conduct meetings, share documents, and perform other necessary work tasks and allowing teams to collaborate, operate and communicate virtually through the power of technology.Remote working has a diverse set of challenges for the multiple parties involved. Constant technology use has potentially negative physical and mental effects, often referred to as "technostress." The aim of this study is to find out how remote work was affected by techno-stressors and examine their relationship with gender. A total of 160 employees who are working remotely from IT sector were chosen as respondents for this study. The data was analyzed using hypothesis testing and descriptive analysis.The results of the analysis indicate that, in general, the remote working employees experienced a moderate level of technostress and with regards to technostress dimensions, the respondents were found to experience moderate level of techno-overload,techno-invasion, techno-insecurity and techno-uncertainity and lower level of techno-complexity.

Keywords:*technostress, remote working, technostress creators, technology use, techno- invasion*

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I. Introduction

The Information Technology (IT) industry is an essential component of the technology-driven knowledge economy of the 21st century. Globally India has been recognized as a knowledge economy due to its impressive IT industry. The IT industry mainly encompasses IT services, IT-enabled services (ITES), e-commerce (online business), Software and Hardware products. This industry is also instrumental in creating infrastructure to store, process, and exchange information for important business operations and other organizations. This industry has a conspicuous impact in improving the productivity of almost every other sector of the economy, it also has huge potential for further accelerating growth and economic development.

COVID-19 outbreak has forced millions of workers around the globe, across different industries, to work from home. Technology and creative tech products are making these concepts a reality by allowing employees to perform their daily duties from the safety of their homes. Maintaining day-to-day communication is vital to continue the workflow at the company, and luckily, there is plenty of technology to support it. The effects of COVID-19 are having a significant impact on the technology sector, affecting raw materials supply, disrupting the electronics value chain, and causing an inflationary risk on products.

Also remote work requires updated knowledge of different software applications and the latest technologies. Many remote workers who are inexperienced with technology might find this intimidating which can cause 'Technostress'. Employees experience Technostress when they cannot adapt to or cope with too many technologies in a healthy manner and feel compulsive about sharing constant updates, feel forced to respond to information in real-time, and engage in multitasking with multiple apps. However, work-related stress ensues once there is a mismatch between the job demands and resources and capabilities of the worker to meet the demands. Organizations have to face "technostress" as a challenge inherent in the use of technology facilities in their activities. This term is a modern disease of adaptation caused by an inability to cope with the new technologies healthily.

The present working environment continues to change, largely due to the increasing use of Information and Communication Technology. Increasingly concerns have arisen in regard to how to manage these changes, especially after the post-COVID-19 scenario. The epidemic has prompted people around the world to combine remote and in-office working. Previously, organizations have been loath about allowing employees for remote

work. But the current world situation has made it a necessity. The technological revolution has undoubtedly brought along many changes in the workplace today. Although it has allowed work to be carried out faster and more efficiently, many employees are not comfortable with the implementation of technology as it involves change and uncertainty. IT jobs are most coveted in the modern era and the most brilliant section of youth are working for it but these jobs are mostly contractual with less job security but high pay and entail strong competitiveness, along with a globalized lifestyle. The working environment exposes the software professionals to high strain, uncertainty, lack of proper personal development opportunities as well as greater imbalance of work activities especially when they are working in a hybrid model. As a result, they experience additional stress known as technostress which may have negative consequences in the organization.Therefore, understanding technostress, that is the stress that users experience as a result of application multitasking, constant connectivity, information overload, frequent system upgrades, and consequent uncertainty, continual relearning and consequent job-related insecurities, and technical problems associated with the organizational use of ICT and its effects on individuals is becoming an important area in organizational behavior studies.

II. Objectives of the study

This study has been undertaken with the following objectives:

1. To find out how the remote working model was affected by techno-stressors, such as techno-overload,techno-invasion,techno-complexity,techno-insecurityand techno-uncertainty in the presence of technostress inhibitors.
2. To identify the difference in stress levels among male and female respondents.
3. To study the implications of COVID-19 on the technology sector.

III. Methodology

To examine the impact of technostress in organizational commitment among the people working in a hybrid working model in the IT sector, this study will utilize the survey method. The level of technostress among the respondents will be measured using the Technostress Creators scale developed by Tarafdar, Tu, Ragu-Nathan, and Ragu-Nathan (2007) which consists of five technostress creators:

1.Techno-overload deals mainly with how the technology used by the respondents causes them to work faster, change their work habits and increase their workload.

2.Techno-invasion which deals with how the technology used in their work has encroached into their personal life.

3.Techno-insecurity deals with whether or not the respondents feel the technology used is a threat to their job security.

4.Techno-uncertainty deals with the constant changes in the technology used.

5.Techno-complexity deals with the perception of the respondents towards the complexity of the technology used and whether they feel that their skills now are adequate or otherwise.

3.1.Hypothesis

Demographic or individual characteristics can influence how users perceive and react to the use of IT, but we still need to understand how this occurs.Men, in turn, seem to be more performance-oriented, more aggressive, and more competitive. Specifically concerning the use of IT, in a study on the factors influencing the intention of new technology usage, Venkatesh and Morris (2000) identified that women tend to value more the aspects related to the ease of IT use and consider this issue when assessing the usefulness of a technological solution. Men, in turn, seem to be more orientated by the perception of the technology's utility, that is, how much users believe IT will impact their professional performance. In differentiating IT professionals and IT users in the professional environment, Maier, Laumer, and Eckhardt (2015) identified different results for the groups concerning organizational results. More specifically, the researchers found that technology-induced exhaustion has a direct effect on the job satisfaction, organizational commitment, and turnover intention of IT users, but for IT professionals, this effect is only indirect. Concerning gender, studies suggest that men and women are influenced by different factors in their decision to use technology. Women are influenced by subjective organizational norms and perceived behavioral control. Men are influenced by their attitudes towards technology. Women are less likely to use computers in the workplace. Therefore, from the above discussion, it is evident that technology affects demographic and environmental factors. So below hypotheses can be formulated :

H0a: There is no significant difference in techno-overload with respect to gender.
H1a: There is a significant difference in techno-overload with respect to gender.
H0b: There is no significant difference in techno-invasion with respect to gender.
H1b: There is a significant difference in techno-invasion with respect to gender.
H0c: There is no significant difference in techno-insecurity with respect to gender.

H1c: There is a significant difference in techno-insecurity with respect to gender.
H0d: There is no significant difference in techno-uncertaintywith respect to gender.
H1d: There is a significant difference in techno-uncertaintywith respect to gender.
H0e: There is no significant difference in techno-complexity with respect to gender.
H1e: There is a significant difference in techno-complexity with respect to gender.

IV. Data collection

The project used both primary data and secondary sources due to the importance of gathering relevant information regarding the research topic. All the data were collected digitally, and the survey was sent via google form containing a questionnaire. Secondary sources are literature previously collected by other authors. In this project, an internet-based procedure was used for the collection of results from previous studies. Since the risk concerning internet-based procedures is high, the secondary sources analyzed in this thesis were scientific peer-reviewed articles, journals, and books accessed through academic databases such as Google Scholar, ABI/INFORM Global, Emerald Insight, etc. The sources were carefully selected in terms of the publication date and connection to the subject due to the desired standard of quality regarding the project topic.

4.1.Data collection sources

Data is collected by using a questionnaire(Likert scale multiple-choice questions) comprising four sections. The first section includes 4 items on the demographic background of the respondents such as gender, age, education, and computer confidence. In the second section, the five factors for technostress creatorstechno-overload, techno-invasion, techno-complexity, techno-insecurity, and techno-uncertainty was asked. These factors can be regarded as different aspects or dimensions of technostress.

4.2.Analysis

Sample size of 160 is taken. The Statistical Package for Social Sciences (SPSS) isused to analyzethe data. Descriptive statistics and inferential statistics are used to testthe data. The correlation can be applied to look at the relationship between chosen demographic variables such as age and gender. Besides, a t-test is conducted to look at the difference in stress level in terms ofgender. Strongly disagree was markedas '1' and Strongly agree as '5'.

Table 1: Composition of respondents with respect to gender, age group, educational qualification and computer confidence.

Variable	Percentage(%)	No. of Respondents
Gender		
Male	51.2	82
Female	48.8	78
Age group		
18-24	81.9	131
25-34	17.5	28
35-44	0.6	1
Educational qualification		
Bachelor's Degree	92.5	148
Master's Degree	6.9	11
Others	0.6	1
Computer Confidence		
2	3.8	6
3	18.1	29
4	59.4	95
5	18.8	30

Source: Primary data

Table 1 depicts that there is a difference of 2.4% in respondents of gender in male and female. 51.2% (N=82), were male and 48.8% (N=78) were female.The majority (81.9%) of the age group responded were 18-24.The majority (92.5%) of respondents had completed Bachelor's Degree.The computer confidence of respondents from scale 1 to 5 shows that majority of the people marked '4'.

V. Findings and Discussion

5.1.Technostress creators and Stress

Table 2: Descriptive Statistics of Technostress creators

Descriptive Statistics of Technostress creators					
	N	Minimum	Maximum	Mean	Std. Deviation
Techno-overload	160	1	5	3.61	.988

Techno-invasion	160	1	5	3.64	1.033
Techno-complexity	160	1	5	2.49	.985
Techno-insecurity	160	1	5	3.33	.915
Techno-uncertainity	160	1	5	3.71	.940

Source: Calculated data

Table 2 illustrates the descriptive statistics of level of stress considering the technostress creators, namely techno-overload,techno-invasion,techno-complexity,techno-insecurity and techno-uncertainity.The mean and standard deviation of 5 technostress creators are 3.61,3.64,2.49,3.33,3.71 and 0.988,1.033,0.985,0.915,0.940 respectively.

5.2.Techno-overload and gender

Table 3: Techno-overload and gender

Source: Calculated data

Techno-overload and gender										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Techno_overload	Equal variances assumed	4.576	.034	-.541	158	.589	-.085	.157	-.394	.225
	Equal variances not assumed			-.543	155.824	.588	-.085	.156	-.393	.223

For Techno-Overload, as the p-value of Levene's test (0.034) lesser than 0.05, equal variance is not assumed which indicated that there is no homogeneity of variance. Therefore the corresponding p-value for the independent sample test is 0.588. Since, P-value greater than 0.05, the null hypothesis is accepted. Therefore we interpret that " There is no significant difference in techno-overload with respect to gender".

5.3.Techno-invasion and gender

Table 4: Techno-invasion and gender

Source: Calculated data

Techno-invasion and gender										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Techno_ invasion	Equal variances assumed	5.655	.019	-1.765	158	.080	-.287	.162	-.607	.034
	Equal variances not assumed			-1.776	155.354	.078	-.287	.161	-.605	.032

For Techno-invasion, as the p-value of Levene's test (0.019) lesser than 0.05, equal variance is not assumed which indicated that there is no homogeneity of variance. Therefore the corresponding p-value for the independent0 sample test is 0.078. Since, P-value greater than 0.05, the null hypothesis is accepted. Therefore we interpret that " There is no significant difference in techno-invasion with respect to gender".

5.4.Techno-complexity and gender

Table 5: Techno-complexity and gender

Source: Calculated data

Techno-complexity and gender										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Techno_ complexity	Equal variances assumed	.483	.488	-1.529	158	.128	-.237	.155	-.543	.069
	Equal variances not assumed			-1.529	157.593	.128	-.237	.155	-.543	.069

For Techno-complexity, as the p-value of Levene's test (0.488) greater than 0.05, equal variance is assumed which indicated that variance is homogeneous. Therefore the corresponding p-value for the independent sample test is 0.128. Since, P-value greater than 0.05, the null hypothesis is accepted. Therefore we interpret that " There is no significant difference in techno-complexity with respect to gender".

5.5.Techno-insecurity and gender

Table 6: Techno-insecurity and gender

Source: Calculated data

Techno-insecurity and gender										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Techno_ insecurity	Equal variances assumed	5.584	.019	-1.240	158	.217	-.179	.145	-.463	.105
	Equal variances not assumed			-1.247	152.062	.214	-.179	.148	-.516	.069

For Techno-insecurity, as the p-value of Levene's test (0.019) lesser than 0.05, equal variance is not assumed which indicated that there is no homogeneity of variance. Therefore the corresponding p-value for the independent sample test is 0.214. Since, P-value greater than 0.05, the null hypothesis is accepted. Therefore we interpret that " There is no significant difference in techno-insecurity with respect to gender".

5.6.Techno-uncertainity and gender

Table 6: Techno-uncertainity and gender

Source: Calculated data

Techno-uncertainity and gender										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Techno_ uncertainity	Equal variances assumed	4.890	.028	-1.508	158	.134	-.223	.148	-.516	.069
	Equal variances not assumed			-1.515	154.892	.134	-.223	.147	-.515	.068

For Techno-uncertainty, as the p-value of Levene's test (0.028) lesser than 0.05, equal variance is not assumed which indicated that there is no homogeneity of variance. Therefore the corresponding p-value for the independent sample test is 0.132. Since, P-value greater than 0.05, the null hypothesis is accepted. Therefore we interpret that " There is no significant difference in techno-uncertainty with respect to gender".

VI. Limitation of the Study

The study depends solely on questionnaires of past research. As there are broad aspects of technology, however, this study deliberately focuses on technology and technostress during remote work .

VII. Suggestions for Future Research

There are several suggestions that could be undertaken for future research. Firstly, a study could be performed to examine the different personalities of the respondents dealing with technostress. Further explore the type of personality that successfully copes with stress and vice versa. Secondly, future research could be done by conducting interviews with respondents to identify other variables that might relate to technostress. The use of semi structured interviews also might help the researcher to enhance the standardized questionnaires. Finally researchers might focus on other psychological health effects related to techno stress such as anxiety, phobia and depression.

VIII. Conclusion

The main findings in this project revealed that the use of technology may contribute to unhealthy psychological impacts particularly stress. Although there was a moderate level of stress among all the respondents, it is essential to identify risk and health factors relating to technostress to enable preventive and intervening approaches.

While the respondents have good computer confidence, it is evident that respondents have a moderate level of technostress. Also, most people agreed that due to technology, they had to work faster and have to do more work than they can handle. Also, they have to work with tight time schedules. Also, the majority agrees that they spend less time with family due to this technology, sacrifice vacation and weekend time to keep current on new technologies, and feels personal life is being invaded by technology. But while considering techno-complexity, the majority disagrees. Only a few agree that they do not know enough about the technology to handle the job satisfactorily, need a long time to understand and use new technologies, and often find it too complex to understand and use new technologies. While considering techno-insecurity, most people are afraid of the constant threats to job security due to new technologies, threatened by coworkers with newer technology skills, and have to constantly update their skills to avoid being replaced. Also, respondents agree that there are always new developments in the technologies in their organization, there are constant changes in computer software/hardware in the organization and there are frequent upgrades in computer networks in their organization.

Among the main findings, results highlighted positive associations between the five techno- stressors, confirming the necessity to deal with the massive use of technologies for work purposes and its negative consequences. It is clear that irrespective of gender, both males and females are affected by techno-overload,techno-invasion,techno-insecurityand techno-uncertainty.Employers and organizations concerned have to handle this matter seriously by providing training to staff that equips them with motivation and other measures. Understanding technostress and how technology affects a person individually might decrease the potential physical and psychological harm.

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