

Technostress: A Critical Assessment of Its Negative Aspects and Strategies for Coping

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Abstract: The information and technological changes have increased the flow of information, and it has crossed space and time limits. Radical changes in ICT have accelerated the rhythm of life and work. The rhythmic acceleration can be felt in the professional as well as personal life. Information and communication technology is widely used in today's work culture and it is contributing to the newly growing problem known as technostress. Technostress cannot be avoided as most organizations across the globe are using digital technology. Continuous digitization significantly affects the work and workers in organizations. It has both negative as well as positive consequences but negative consequences are more as per the different studies. Numerous empirical studies have been conducted on technostress but among them, few have comprehensive reviews, which have led to fragmented information about the technostress. The main objective of this study is to review the negative implications of technostress and how to cope with them. We gathered data from published articles available in different databases. The integrative research design has been used to carry out the research. Based on the results available from different studies, we have conceptualized this study and it will help individuals and managers to be aware of technostress impacts. Organizations can manage well in time the unwanted risks that technostress brings into them. In this review article, we have shown the negative impacts of technostress and strains arising as a result of technostress along with the coping mechanism that helps to mitigate the negative outcomes of technostress.

Keywords: Coping Mechanism, Dark Side of Technology, Technostress, Technostress Causes, Technostress Impacts, Technostress Review, and Techno Strains

I. INTRODUCTION

Humans are the driving force behind technological progress, affecting people's lives for better or worse. Innovations in technology now rely more on data processing than they did in the past when most innovations were in the material realm. Safety against the potentially harmful physical impacts of technological advancements requires research into ergonomics. However, digital technology puts our minds and thoughts in danger these days. Faster global communication, streamlined work procedures, and other benefits of information technology were introduced to improve human [1]. Several names have identified problems with stress caused by ICT usage. Techophobia, computer phobia, etc., are some of the terms. Working professionals at all levels and different domains of the organization's hierarchy and in all countries experience technostress, a relatively new problem in academic study [2]. The two main symptoms of technostress, often called technophobia, are an aversion to or difficulty embracing technological developments in general and, more particularly, in computers [3]. The convenience of better and more frequent communication is only one-way technological progress has simplified human existence. However, the downside of its utilization has also been brought to light. Because technostress has beneficial and harmful impacts, experts have characterized it as a "double-edged sword" [4]. The usage of technology has the unintended consequence of making people more anxious. Many people put too much strain on themselves by constantly using various electronic gadgets, including smartphones, tablets, and laptops. Chronic stress is bad for physical and mental health; technological stress is an issue, and your body only has one stress reaction. Anxiety [5]; weakness [1], and weariness [5] are some of the negative or detrimental impacts of technostress that have been shown by studies in the literature. Scientific studies have shown that technostress negatively impacts work performance, job satisfaction, and organizational commitment. These studies include [6], [7], [8], and [9].

II. DEFINING TECHNOSTRESS

Research on technostress has been ongoing since the 1980s, and several studies have focused on this pressing subject for many years. According to research by Craig Brod, an American Scholar, people who rely on computers for their jobs are more likely to experience techno-stress. The word "technostress" was first coined by him. Persons experience technostress when they cannot effectively use and manage the negative impacts of technology [10]. When a person is too reliant on computer technology for his job or has pain while using it, this is known as technostress. A person

suffering from technostress may have an adverse emotional reaction to the introduction of new computer technologies meant to make their jobs easier. Organizationally, it refers to the strain people feel while interacting with information technology at work [7]; [6]. There are three separate but interrelated components of technostress: (i) worry, (ii) pessimism, and (iii) negative thoughts [11]. Five causes of technostress were listed by [12] (refer to Table 1.) These are known as techno stressors.

TABLE I
 TECHNO STRESSORS AND THEIR DEFINITIONS [Source: Tarafdar et al. (2007)]

Techno Stressor	Definition
Techno-Overload	A work situation in which an ICT worker has to work quickly for a longer time
Techno-Invasion	A blurring situation between an employee’s work life and personal life as they remain connected and can be contacted at any time.
Techno-Complexity	Employees feel complex to working with new technology, and they need time to understand and work with it
Techno-Insecurity	A situation where an employee feels that he may be replaced by an employee who has more ICT skills than that of him
Techno-Uncertainty	Changes are occurring in ICT hardware and software, and employees need to learn new technologies. This adds uncertainty to their minds.

III. TECHNO STRESSORS: CAUSES OF TECHNOSTRESS

What we call "stressors" might be anything from chemical or biological agents to environmental factors that cause people to feel stressed. Individuals struggle to meet the psychological demands of these increasingly demanding settings. They are not physically or mentally safe under these conditions [13]. [14] identified and described two types of technological stresses: challenge and impediment. Tech demands that might help workers learn more, improve, and advance in their careers are called challenge techno stresses. Employees are motivated and develop professionally as a result of these technological stresses. They need technologies that facilitate information and communication to overcome these obstacles, which include heavy workloads, complex tasks, and responsibilities. The user benefits from these technological stresses, but their subjective interpretation is necessary since they might affect the consequences. Potential consumers are harmed or lose out when stresses in technology act as roadblocks. Ultimately, these technological pressures cause users to suffer losses in their own lives. [12], a renowned researcher on technostress found five main stressors. Table 1 shows that these five primary stresses exist. [15] have identified two main factors that might lead to technostress. In the first group were system functionality issues, such as bugs, poor usability, or security risks. Causes in the second group have less to do with system performance and more with the reasons behind people's exploitation and usage of IT at work. This research article has emphasized the adverse consequences of technostress.

IV. TECHNOSTRESS IMPACTS

Early studies have included the impacts of technostress on individuals and organizations, shown in Table2.

TABLE II
 TECHNOSTRESS IMPACTS

Impact	Papers
Satisfaction on Job	(Boonjing&Chanvarasuth, 2017; Kumar et al, 2013; Raghu Nathan et al., 2008; Suh & Lee, 2017; Tak & Park, 2016; Yin et al.,2018)
Productivity	(Emmaneul et al., 2015; Tarafdar, 2007; Tarafdar et al., 2010; Tiwari, 2020)
Commitment to Organization	(Norulkamar et al.,2009; Jena, R. 2015)
End User Satisfaction	(Tarafdar et al., 2010)
Technology Resistance by User	(Yun et al.,2012)
User’s Expectations & Preference	Stich et al.,2019
Performance	(Boonjing&Chanvarasuth, 2017; Tarafdar et al., 2014)
Work/ Workplace Performance	(Atanasoff and Venable, 2017)
Performance Associated with Technology	(Jena, 2015)
Task Performance	(Boonjing&Chanvarasuth, 2017; Tams et al., 2018; Tarafdar et al., 2010)
Well -Being	(Hang et al., 2022; Nimrod,2018)

Technostress effects on satisfaction at job sites and output have been extensively covered in the literature on the topic. Poor job satisfaction among organizations' workers is attributed to factors including the following: overuse of technology [16], performing competing roles due to various working platforms of technology [9], work exhaustion created due to technostress [17][18] the pace of technological changes and with these changes the job characteristics changes and they are sources of strain [18], job continuity due to connected technology [19], and information overload [20]. Technostress has several effects on productivity. ICT tasks involving the use of ICT both directly and indirectly [6], techno-overload [21], role conflicts and role overload due to technological use [12], and low organizational productivity as a result of heavy reliance on and heavy use of technology [21] Introducing and implementing new technology into the workplace causes stress [22]. Mobile technology's widespread use in homes and workplaces has increased consumer resistance to its usage, reducing end-user happiness and increasing workloads [6]; [23]; [16]and [24] found that excessive technology usage negatively impacted employees' stress levels and job performance. According to research, technostress lowers general well-being [25] and [26]. Anxieties are a common reaction to technology, which affects people of all ages [26].

V. PSYCHOLOGICAL, BEHAVIOURAL, AND PHYSIOLOGICAL OUTCOMES OF TECHNOSTRESS /STRAINS

Technology is putting consumers under much stress, in addition to these negative repercussions. They are experiencing stress on a physical and mental level. [5] found that people become fatigued from using digital technology, while [27] found that people have reached a point where they no longer see technology as advantageous; instead, they feel exhausted. According to [28], [29], and [30], users are experiencing burnout due to the ongoing strain. Excessive use of digital technology, often ICT, leads to physical issues among users. Potential side effects include redness or straining in the eyes, increased cortisol levels and blood pressure [31], back discomfort, nausea, impatience, and even cardiac arrests [32].

TABLE III
STRAINS OF TECHNOSTRESS

Outcomes		Papers
Psychological Outcomes/Emotional Strain	Techno-Exhaustion	(Yang et al.,2017)
	Anxiety due to Negative Emotions	(Lee,2016)
	Anger due to Negative Emotions	(Lee,2016)
	Relational Anxiety	(Kummer et al.,2016)
Physiological Outcomes/ Physical Strain	Employee Burnout Issues	(Mahapatra & Puti, 2018; Park et al., 2020; Salanova et al., 2000; Srivastava et al., 2015)
	Eye Strain	(Boonjing & Chanvarasuth,2017)
	High Heart Rate, High Blood Pressure, High Cortisol Level	(Riedl, 2012)
	Loneliness / Isolation	(Boonjing & Chanvarasuth, 2017; Taser et al, 2022)
	Tiredness	(Ayyagari et al., 2011)

VI. WORKING MODEL OF TECHNOSTRESS

Based on the preceding discussion we have presented a functional model of technostress. Technological stresses, strains, and technological stresses impact make up this mode, as shown in Figure 1. Technostress is the result of factors that produce it. Relying on technologies for job-related purposes causes technostress. Starin is the second component in our model. The reaction to technological stress is known as strain [5]. Strain arises when an individual receives continuous exposure to technostress. According to [33], sustained and frequent exposure causes relational anxiety [33], and [34], his study found that it is adversely associated with emotional anxiety and anger. The third construct of our working model is the impact of technostress. It explains the outcomes of technostress. In a working space, individuals suffer from the negative consequences of technology. This model helps to understand the root causes that create technostress. The core purpose of this model is to enhance comprehension of technostress among individuals and managers of different working organizations so that they can build and apply appropriate strategies to buffer the impact of technostress.

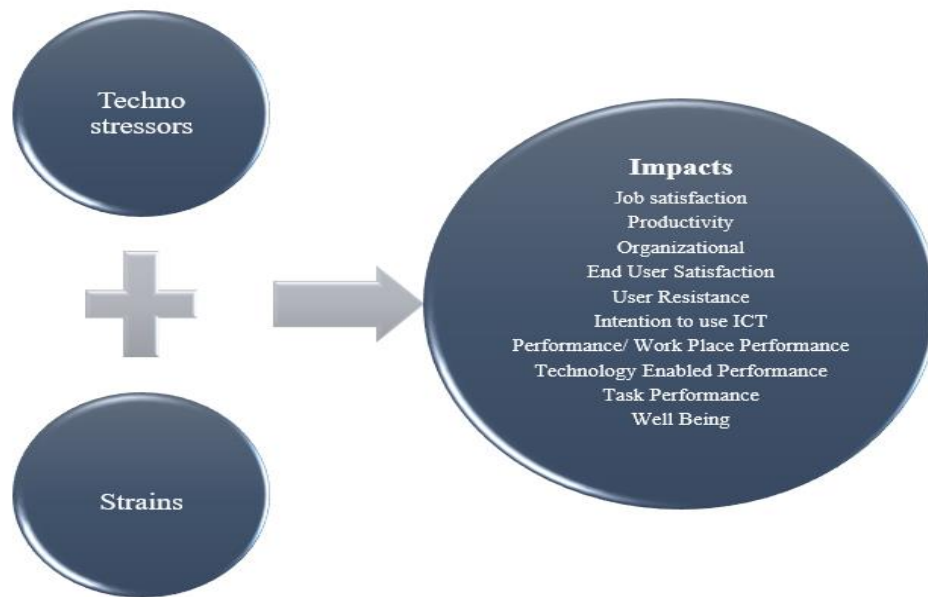


Fig. 1 Technostress and Its Impacts

VII. COPING STRATEGIES

Coping strategies are those strategies that lessen the negative consequences arising out of technostress. In the literature, different mechanisms have been addressed by the researchers. By communicating feedback, whether positive or negative, employees develop self-control, and this increases their task performance, which in turn reduces their emotion-based technostress developed due to ICT use. [35]. To beat the work-related technostress, employees must be given the autonomy to choose the IT tool they are comfortable with and must have role clarity and no information load. [36]. Technostress can be mitigated by venting, disengaging themselves from work, enhancing technological know-how, better managing technological use time, and having a positive outlook toward technology [37]. [38], in their study showcased that mindfulness, as well as IT mindfulness neutralizes technostress, and they are able to reduce the negative effects arising due to technostress in the organization. Finding leisure time and doing recreational activities such as going shopping, going on excursions, and entertaining oneself with TV, and other media has been found as an individual strategy to reduce mental strain [39]. In their study of how leadership influences coping with technostress [40] explored techno training as a means to curb the technostress.

VIII. CONCLUSION & LIMITATIONS

This research work aims to provide a foundational conceptual review of technostress. This study explains how technostress creates negative impacts. It becomes necessary to understand the impacts of technostress as it is a complex phenomenon. In this study, the techno stressors and their sources have been explained and it has been demonstrated how this influences the individuals associated with different organizations. This study enriches the knowledge base and it can be helpful for the researchers as it explains the phenomenon of technostress in non-specific domains. Along with the technostress review, a coping mechanism that can be used to battle the negative effects of technostress has also been reviewed in this article. These coping strategies are helpful to reduce emotional as well as psychological problems arising due to technostress. Despite the fact that our work adds to the literature in various manners, there are some limitations that we must address. These limitations, in our opinion, can open the door for further research on technostress by other researchers. First, this study has covered limited papers from databases. Further studies can incorporate more papers from different databases to make it more comprehensive. Second, this study is limited in that it only explains the causative effects of technostress and the impacts arising thereof. Although we have covered the coping mechanism for technostress that can help in minimizing the technostress. However, a more comprehensive study can be made on coping mechanisms to minimize the technostress. Third, this study is the non-specific domain. Researchers can conduct a comprehensive study of a specific domain in the near future.

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