

# Psychological Factors of Technostress: Empirical Evidence from Indian Organizations

## Authors

### Chandranshu Sinha

D.Phil. in Psychology (Corresponding Author)  
Assistant Professor, Amity Business School, Amity University Campus,  
F3 Block, Sector 125, Post Box – 503, Noida 201303 India  
Mobile: 91-11-9650670222

### Ruchi Sinha

D.Phil. in Psychology  
Assistant Professor, Galgotias Business School, 1, Knowledge Park, Phase II,  
Greater Noida 201306, Uttar Pradesh, India  
Mobile: 91-11-9818145712

---

## Abstract

*The study explores to identify the psychological factors of technostress in organizations. The data was collected from 100 employees holding middle managerial positions in various IT organizations, based in India. The Cronbach's alpha of the questionnaire was found to be 0.786 & Pearson correlation was 0.912 ( $p < 0.001$ ). The factor analysis of the component 'psychological factors of technostress' led to the extraction of three below mentioned factors from various organizations. The three emerging factors were "techno-cognitive-task-concern", "techno-invasive-emotional-differences", "techno-invasive-task-disagreement" respectively. The results indicate that these factors are major source of cognitive, emotional and interpersonal issues at psychological level which the employees at middle managerial level perceive and experience at work due to technostress in the Indian context.*

Keywords: Technostress; Technostressors; Psychological Factors of Technostress

---

Corresponding Author: Chandranshu Sinha, D.Phil. in Psychology

## 1. Introduction

Experiencing stress is familiar to people in the workplace; however, excessive stress may have negative influences on individuals' physical and mental conditions (Lu et al., 2000; Viator. 2001). But, the realities of organizations have become even more complex with information and communication technologies pervading work as well as personal lives in this century. In fact its impact on pressured work environment is becoming increasingly evident throughout Indian industry and the effect of information and communication technologies on stress in individuals is an important area of inquiry that has so far not been adequately addressed (Cooper et. al. 2001). However, it is worth noting that current theoretical understanding on the nature, antecedents, and

consequences of technostress is based largely on studies conducted in Western countries. Psychological factors may affect an individual's perception and experience of technostress as well as his or her response to it. Although the stress research area is broad, technostress has not been extensively studied. To fill the above knowledge gap, in this study we examine the psychological factors that affect technostress among a group of information technology professional managers in India, a society that is characterized by high uncertainty avoidance (Hofstede, 1980). Theoretically, the paper contributes in two ways. First, this study examines the reasons behind what employees perceive about technostressors in Indian organizations. Second, the psychological factors of technostress identified here add to existing concepts on stress experienced by individuals in information technology organizations, especially in the Indian context. This research focuses on the employees at middle managerial level working in various Indian organizations. In other words, the study proposes that understanding the reasons behind peoples' perception of technostressors for organizations is an important goal to counter its adverse effect as well as reduce role conflict and role overload.

## 2. Literature Review

The term '*technostress*' was coined in 1984 by clinical psychologist Craig Brod, who described it as a modern disease caused by one's inability to cope or deal with information and communication technologies in a healthy manner. Stress in the workplace is recognized as contributing to a range of health and quality-of-life issues that could have far reaching consequences (Tennant, 2001). The World Health Organization (WHO) argues that present work patterns have changed partly due to the increased use of information and communication technologies (WHO 2005) resulting in significant payback for organizations over the past four decades in terms of reduced operational costs, greater process efficiencies, new strategic alternatives, and possibilities for innovation (Kudyba, S., and Diwan, R., 2002). At the same time, however, researchers agree that the organizational effects of information and communication technologies are very broad and indirect, and that the implementation of information and communication technologies leads to effects that have a "dual nature." In particular, along with generating obvious business benefits, information and communication technologies can also cause negative reactions in individuals and require them to adjust in various ways (Hudiburg et. al. 1999). A number of studies have documented these dual, and sometimes dark, effects of the implementation and use of information and communication technologies (Nelson, D.L., and Kletke, M.G., 1990) showing to have higher levels of psychological, social and organizational stress among employees in their work environment. (Kinman and Jones 2005). While some have argued that this increase is due to heavier workloads (Aborg and Billing 2003, Sandblad et al. 2003), it is most likely a combination of effects. The use of information and communication technologies has produced a perpetual urgency and creates expectations that people need, or are obligated, to work faster (Hind, 1998). Straub and Karahanna (1998) argue that Technostress likely comes from the fragmentation of work. Globalization and the fierce competitive nature of business has created lean organizations with cultures that reward people who work exceptionally hard, spend longer hours at work, and are connected to the organization 24/7 via information and communication technologies (Kouzmin and Korac-Kakabadse, 2000). Further, information and communication technologies also change the role of the individual in the organization (Barley, 1990). For instance, when enterprise applications are implemented, they are often accompanied by process reengineering, such that

the way in which organizational work is accomplished is altered. Also, tasks become computer mediated and possibly more abstract, as interaction with physical work-artifacts decreases and that with data or information increases (Zuboff, 1988). Finally, information and communication technologies implementation often creates new structures of power, authority, and decision making, as processes are reengineered, old functions are eliminated, and new ones are created. As these examples show, organizational effects of information and communication technologies triggered changes are manifest in two ways (Joshi, 1989). First, there is a direct effect, as is visible in information and communication technologies induced changes in the “technical system”—that is, changes in tasks and processes. Second, there is an indirect effect that is evident in changes in the “social system”—that is, in roles, reward systems, and authority structures. Both of these effects can be significant sources of stress for individuals in the organization and can have adverse effects on individual productivity and performance (Eason, and Damodaran, 1981).

Technostress deals with stress due to information and communication technologies; however, an individual’s work situation could be stressful for several reasons (in addition to technostress). In brief, technostress is driven by a range of psycho-social factors: Psychological Capital, Work Overload, Interpersonal Conflict, Role Ambiguity, Work-Family conflict, Role Anxiety and Insecurity, Cognitive Processing, Role Conflict, Role-overload and Invasion of Privacy. It is suggested that some of the well-known stressors may be more pronounced with the use of information and communication technologies at work (Frese 1987). For example, the work overload stressor might have a component due to the use of information and communication technologies and other components due to the nature of the job. Since the focus of this study is on technostress, it is important to only consider stressors due to information and communication technologies. Consequently, future references to stressors (“i.e. work overload, role ambiguity, invasion of privacy, job insecurity, work-home conflict etc”) refer to the components of these stressors due to information and communication technologies (e.g., work overload refers to work overload due to information and communication technologies). A brief introduction of these psychological factors examined in this study is provided in the following section.

## **2.1 *Interpersonal conflict***

Stress research is shifting from its traditional focus on role stress and workload to stress that originates from interpersonal interactions at work (Diefendorff and Ellington 2008; Schieman and Reid 2008; Young and Corsun 2010). Because humans are social beings, their attitudes and behaviors are significantly influenced by the quality of interpersonal relationships (Frone 2000). Interpersonal problems are a universal human phenomenon that often ranks as a *primary source* of unhappiness in people’s lives (Frone 2000). A construct that measures the quality of interpersonal relationships at work is interpersonal conflict. In the workplace, interpersonal conflict can range from minor disagreements with coworkers to heated arguments and physical violence. Interpersonal conflict involves both *overt* (e.g., rudeness) and *covert* (e.g., spreading rumors) behaviors that lead to psychological strain. Despite the potential importance of this construct, research investigating the effect of interpersonal conflict in sales settings is limited. Interpersonal conflict has been associated with employees’ divergence of interests (Bluen and Barling 1988) and often occurs in selling, where salespeople compete for resources and customers (Narayanan, Menon, and Spector 1999). A high degree of interpersonal conflict

occurs when employees have different and conflicting views about job issues (De Dreu and Weingart, 2003). Because role conflict measures employees' beliefs that job demands are incompatible (Chen and Spector, 1992), a strong association between interpersonal conflict and role conflict should be expected. In brief, Interpersonal conflict represents the extent to which an employee has negatively charged social interactions with coworkers (Spector 1987). Interpersonal conflict is one of the most important stressors at work due to its pervasive effect on employee emotions and team work (Liu, Spector, and Shi 2007). Interpersonal conflict is of particular concern in boundary spanning positions where collaborative work is expected (Mulki, Jaramillo and Locander 2008).

## **2.2 *Work Overload***

Work overload is the perception that assigned work exceeds an individual's capability or skill level (Cooper et al. 2001). Role overload happens when the requirements from an individual's role exceed his or her capacity in terms of the level of difficulty or the amount of work (Kahn et. al. 1964). Quantitative role overload describes situations where there is simply too much to do. Qualitative role overload relates to instances where the job that is required to be done is too difficult for the individual to accomplish (Katz and Kahn 1978). Work overload can also happen when a person has to fulfill a number of different roles, more than what he or she can effectively manage (Kahn et. al. 1964). In such a situation, the individual is exposed to too many requirements from different roles and simply becomes overwhelmed.

## **2.3 *Work-Family Conflict***

Work-family conflict is generally defined as a form of inter-role conflict in which the role pressures from the work and family domains are mutually incompatible or incongruous in some respect, whereby participation in one role is made more difficult by virtue of participation in the other (Greenhaus and Beutell, 1985). Work-family conflict has been neglected in previous stress research because work and family are often viewed as separate life domains. However, recent studies suggest that the interface of work and family produces stresses and strains for employees (Cooper et al. 2001). Evidence also indicated that work-family conflict is associated with a lower level of job satisfaction and a higher propensity to leave the organization (Burke, 1988). Some job-related factors such as work involvement, hours of work, and job flexibility were found to affect the level of work-family conflict (Ngo and Lau, 1998). Because of heavy job involvement, as well as long and inflexible working hours, it seems that clergy experience a higher level of work-family conflict than other workers. In brief, work-home conflict is the perceived conflict between the demands of work and family (Cooper et al. 2001).

## **2.4 *Role Overload***

Role overload refers to the sheer amount of work required and the time frame in which work must be completed (Cooper et. al. 2001), it occurs when work roles require more time and effort than an individual has for them so that the roles cannot be performed adequately and comfortably (Markham and Bonjean, 1996). Previous research has shown that role overload is related to higher levels of strain, anxiety and depression, as well as poor job performance (Cooper et al. 2001). Role overload is an issue for clergy since they work an irregular schedule that involves

unpaid overtime. They are expected to have high involvement in multiple work roles (Beck, 1998) and, thus, they are likely to suffer from role overload. In brief, work overload reflects the degree to which work requirements (environmental demands) exceed the individual's abilities.

## **2.5 Role Conflict**

Role conflict is a feeling of being torn in multiple directions, unable to find a way to make every role partner satisfied. It occurs when, for example, a manager believes that the expectations and demands of his or her boss and customer are incompatible. In other words, Role conflict refers to the incompatibility in communicated expectations that impinge on perceived role performance (Rizzo et al. 1970). It exists when an employee faces incompatible expectations such that compliance with one expectation would make it difficult or impossible to effectively comply with the other expectations (Kahn et al., 1964). Similar to role ambiguity, role conflict was found to be associated with numerous undesirable consequences, including lower job satisfaction, organizational commitment, job performance, and higher turnover intentions (Jackson and Schuler, 1985). Role conflict is a problem for managers because they need to interact with different groups of people, including stakeholders with diverse backgrounds, who make different expectations and demands on their time. They also need to perform a multiplicity of roles (Kay, 2000). When these role expectations are incongruent and conflicting, and managers do not have sufficient time and resources to fulfill these role expectations, they are likely to experience role conflict.

## **2.6 Role Ambiguity**

Role ambiguity is the perception that one lacks information necessary to perform a job or task, leading the perceiver to feel helpless. It is a manager's uncertainty about the expectations of different members in his or her role set (e.g., boss, customers). In other words, role ambiguity occurs when an individual does not have clear information about the expectations of his or her role in the job or organization (Rizzo et al, 1970). As shown by previous studies, higher levels of role ambiguity are related to lower job satisfaction, more job-related tension and anxiety, lower work commitment and involvement, lower job performance, and a greater propensity to leave the organization (Jackson and Schuler, 1985). Managers are likely to experience role ambiguity when their work role is not clearly defined and they need to perform diverse tasks and duties (Kuhne and Donaldson, 1995). As they work independently, managers may not receive clear and sufficient information about their work role requirements and expected performance from the organization. Monahan (1999) examined the antecedents of role ambiguity and suggested that unclear boundaries between employees and lay people, and among those employed in different locations, were the main sources of role ambiguity. She further found that the employee task load, job description and background characteristics, such as specialized training and tenure, were associated with role ambiguity. In brief, Role ambiguity is the unpredictability of the consequences of one's role performance and lack of information needed to perform the role (Cooper et al. 2001).

## **2.7 Psychological Capital**

Taking a new approach, this study draws from both positive psychology and the emerging study of positive organizational behavior to investigate whether the recently identified core construct of psychological capital may be a key factor in better understanding not only how employees perceive stress symptoms, but also the impact of stress on work-related behaviors. The core construct of positive psychological capital (Luthans, Avolio, et al., 2007; Luthans, Youssef, et al., 2007) has been defined as “an individual’s positive psychological state of development and is characterized by: (1) having confidence (self-efficacy) to take on and put in the necessary effort to succeed at challenging tasks; (2) making a positive attribution (optimism) about succeeding now and in the future; (3) persevering toward goals and, when necessary, redirecting paths to goals (hope) in order to succeed; and (4) when beset by problems and adversity, sustaining and bouncing back and even beyond (resilience) to attain success” (Luthans, Youssef, et al., 2007). This operational definition differentiates the core construct of PsyCap (efficacy, optimism, hope, and resilience) from the widely recognized aspects of human capital (what you know in terms of knowledge, skills, abilities, and experience) and social capital (whom you know, including your network of relationships). Recent research has empirically supported PsyCap as a higher-order core factor (Luthans, Avolio, et al., 2007) that is open to development (Luthans, Avey, Avolio, Norman, & Combs, 2006; Luthans, Avey, & Patera, 2008) is associated with higher performance (Luthans, Avolio, et al., 2007) and may affect employee stress levels.

## **2.8 Role Anxiety & Insecurity**

First, information and communication technologies have been known to induce anxiety and tension in users (Marcoulides, 1989). Depending on an individual’s disposition toward information and communication technologies, his or her interaction with computers can be fraught with nervousness and apprehension. This can create psychological effects such as insecurity about information and communication technologies, and can decrease confidence and overall comfort about their use. A few studies (Brillhart, P.E., 2004) have discussed individuals’ attempts to deal with feelings of anxiety and stress in their efforts to reorganize familiar work habits and deal with increased possibilities for remote supervision, multitasking, and pervasive connectivity. Such conditions could lead to feelings of helplessness and of being hassled, and can result in aversion to (Abdul-Gader, A.H., and Kozar, K.A., 1995) and phobia about (Hudiburg, R.A., and Necessary, J.R., 1996) the use of computers.

## **2.9 Invasion of Privacy**

Invasion of privacy involves the perception that an individual’s privacy has been compromised (Alge 2001). The use of information and communication technologies creates stress in users and is caused by an inability to adapt or cope with new information and communication technologies in a healthy manner (Brod, C., 1984; Weil and Rosen 1997). For instance, the pervasiveness of modern information and communication technologies often results in almost constant “connectivity” through e-mail, the Internet, and the phone. Individuals feel that because they are always connected, they are “on call.” This leads them to believe that they have lost control over their time and space, which creates feelings of being stressed out.

## **2.10 Cognitive Processing**

Information and Communication Technology users are regularly inundated with information from many different sources. Such information is frequently more than they can effectively process. This, combined with increasing levels of complexity in the ever changing information and communication technologies, creates feelings of being unable to cope and leads to stress. Technostress, therefore, is one of the fallouts of an individual's attempts and struggles to deal with constantly evolving information and communication technologies and the changing cognitive and social requirements related to their use. Its effects have become increasingly apparent over the past few years with the rapid proliferation of information and communication technologies in the workplace. There have also been studies on the stress experienced by information systems personnel (Ivancevich et. al. 1983; Li, E.Y., and Shani, A.B., 1991; Sethi et. al. 2004). However, there is little systematic research that tries to understand the stress-creating aspects of information and communication technologies and their effects on the *users* of information and communication technologies in organizations. Given the rapid and ever changing developments in information and communication technologies in recent years, there have been dramatic and irreversible changes in the workplace, and new concerns have emerged with regard to managing these changes (Markus, M.L., 2004). For the most part, the use of information and communication technologies in the workplace is not optional. It is therefore important to understand the stress-creating effects of information and communication technologies. Although these studies establish the importance of Technostress, it is not clear which characteristics of technology create stress. This conceptualization essentially black boxes the Technostress phenomenon, making the boundaries and relationship between technology characteristics and stress ambiguous. For example, one of the dimensions used to capture Technostress is techno-overload, which asserts that there is greater workload and this is caused by technology. However, it is not clear what characteristics of technology are causing this increase in workload.

## **3. Methodology**

This study used a descriptive survey design. The purpose of descriptive surveys, according to Ezeani (1998), is to collect detailed and factual information that describes an existing phenomenon. A thorough review of literature was conducted before selecting the topic of the study. In this study, we focused on understanding the psychological factors affecting technostress among a group of professional managers in India. In other words, this study examines the reasons behind what employees perceive about technostressors in Indian organizations. The study would be helpful in understanding the psychological aspect of this new emerged reality of technostressors. The target populations of the study were 100 middle level managers who were selected from various organizations to participate because practically no empirical research work has been carried out, to understand the construct of technostress in the Indian context, a society that is characterized by high uncertainty avoidance (Hofstede, 1980). This study aims to fill the niche by studying the effect of information and communication technologies on stress in individuals, as this is an important area of inquiry that has so far not been adequately addressed. Moreover, because by understanding the reasons behind peoples' perception of technostress experiences, organizations would be able to counter its adverse effect as well as reduce role conflict and role overload. Therefore, the findings add another perspective to existing concepts

on stress experienced by individuals in organizations, especially in the Indian context regarding the psychological factors that affect the construct of technostress in organizations. The population was taken for survey from middle level managers employed in various organizations, based in north India. A total enumeration sampling technique was used to select 100 middle level managers.

### **3.1 Instrument**

A set of ten measures were selected for the study after going through the literature. A structured questionnaire was constructed utilizing these ten measures of Psychological Capital, Work Overload, Interpersonal Conflict, Role Ambiguity, Work-Family conflict, Role Anxiety and Insecurity, Techno-complexity, Role Conflict, Role-overload and Invasion of Privacy with appropriate instructions for each section of the questionnaire for the collection of data on the study. The questionnaire was specifically designed to accomplish the objectives of the study. The first section collected information such as age, sex, experience, professional status, marital status and position. The second section was supplemented by items based on the studies of Mulki, Jaramillo, and Locander (2008); Diefendorff and Ellington (2008); Cooper et al. (2001); Kay, (2000); Luthans, Avey, & Patera, (2008); Luthans, Avolio, et al., (2007); Brillhart (2004); Sethi et. al. (2004). To assess the validity of the questionnaire, expert judgment method was applied. So, the developed questionnaire, along with explanations regarding terms and concepts were presented to three university professors, eight managers from the various organizations. As such, they were asked to express their views about its construct, content, formal appearance and writing model. Many inputs were given by them that were included while finalizing the questionnaire. It was also noticed that some of the questions needed revision along with some additions and deletions. The necessary amendments were then made and its content and construct validity were assured and finally confirmed by other experts. The questionnaire consisted of 50 items in which the perception of the participants was central. The items measured the participants' perception, work behaviors and attitudes towards various technostressors in organizations. All 50 items were scored on a five-point Likert scale ranging from 1 "I strongly disagree" to 5 "I strongly agree". Then, to determine the reliability of the questionnaire, it was sent to various organizations. The questionnaire was filled out by the research community belonging to middle managerial level. After the mentioned questionnaires were filled out, the reliability of the questionnaire was determined using Cronbach's alpha and Pearson correlation. The overall reliability co-efficient of the modified instrument after the pilot survey yielded an  $r = 0.786$  cronbach alpha while Pearson correlation was 0.912 ( $p < 0.001$ ) showing that the questionnaire was reliable.

### **4. Analysis**

Kaiser-Meyer-Olkin was used to determine the sufficiency of the sample size, and Bartlett test of sphericity was applied to calculate the meaningfulness of the correlation matrix. Then, the exploratory factor analysis was performed with maximum probability approach to identify the rate of loading of variables recognized in the component, and Varimax orthogonal approach was used to interpret the variables. Subsequently, the confirmatory factor analysis was used, with application of Lisrel 8.7, to verify the fitness of factors achieved during the explanatory factor analysis. The fitness indexes are as follows: Chi square index, goodness of fit index (GFI),

comparative fit index (CFI), normed fit index (NFI), non-normed fit index (NNFI), incremental fit index (IFI), related fit index (RFI), adjusted goodness of fit index (AGFI), root mean square error of approximation (RMSEA) and root mean square residual (RMR). However, if CFI, GFI, NFI, NNFI, IFI, RFI and AGFI are higher than 0.90, and RMSEA and RMR are less than 0.50, it proves a desirable and appropriate fitness (Alexopoulos and Kalaitzidis, 2004).

#### **4.1 Results**

In the first step, the correlation of each identified variable and the internal consistency of all variables were calculated in the component “Psychological Factors of Technostress” for the data. Before the explanatory factor analysis, the Kaiser-Meyer-Olkin approach was used to determine the sufficiency of the sample size for the component, while Bartlett test of sphericity was used to establish whether the correlation matrix has meaningful difference with zero or not. The sufficiency of sampling and meaningfulness of the correlation matrix for the ( $p < 0.001$ ), respectively. It showed that the exploratory factor analysis was permissible. Then, the explanatory factor analysis was performed with maximum probability approach and the variables were interpreted with Varimax rotation approach. The results showed that three factors came out from the “psychological factors of technostress” component with special values bigger than 1. The first, second and third factors explained 43.482, 10.573 and 8.8430% of the total variances of variables, respectively. Therefore, these three factors explained 62.898% of the total variances of variables for the component “psychological factors of technostress” from various organizations. Regarding this component, the following variables formed the 1<sup>st</sup> factor:

1. Role Ambiguity
2. Role Anxiety & Insecurity
3. Cognitive Processing
4. Role-overload

The 2nd factor was formed by the following variables:

1. Work Overload
2. Work-Family conflict
3. Invasion of Privacy

The 3rd factor was formed by the following variables:

1. Psychological Capital
2. Interpersonal Conflict
3. Role Conflict
4. Invasion of Privacy

In Table 1, the confirmatory factor analysis was made with the use of the software “Lisrel 8.7” for “psychological factors of technostress” and then the fitness of the factors achieved was determined (Table 2).

**Table 1:** Psychological Factors of Technostress

Code Variable	1st factor	2nd factor	3rd factor	t-value	R2
1. Psychological Capital			0.687	5.57*	0.56
2. Work Overload		.557		5.26*	0.45
3. Interpersonal Conflict			0.400		4.70* 0.41
4. Role Ambiguity	0.656				5.42* 0.58
5. Work-Family conflict		0.678			6.79 0.89
6. Role Anxiety & Insecurity	0.567				6.62 * 0.20
7. Cognitive Processing	0.760				5.68* 0.53
8. Role Conflict			0.994	4.66*	0.69
9. Role-overload	0.503				5.82* 0.50
10. Invasion of Privacy	0.447	0.470		6.51*	0.64

\* t>1.96.

Subsequent to the earlier stated stage, the first, second and third factors of the component “psychological factors of technostress” were the approved factors named: “techno-cognitive-task-concern”, “techno-invasive-emotional -differences”, “techno-invasive-task-disagreement” respectively.

**Table 2:** Fitness indexes calculated for the component “Psychological Factors of Technostress”.

Component/ Index	Root Mean Square error of approx (RMSEA)	Goodness of Fit Index (GFI)	Comparative Fit Index (CFI)	Normed Fit Index (NFI)	Non-Normed Fit Index (NNFI)	Incremental Fit Index (IFI)	Relative Fit Index (RFI)	AGFI	RM R	X <sup>2</sup>	P Value
Psychological Factors of Technostress	0.0016	0.95	0.93	0.88	0.92	0.93	0.84	0.77	0.034	23.34	p>0.05

### 5. Discussion

In the present study, we found that three factors each have been identified regarding the component ‘psychological factors of technostress’. Contrary to the studies conducted in Western

countries, this study keeps in mind the cultural realities of India, characterized by high uncertainty avoidance, high power-distance, Femininity and are Collective in orientation (Hofstede, 1980). Given such cultural differences, the findings on techno- stress obtained from studies conducted in the West may not be readily generalized in the Indian context. This study explored the psychological aspects of technostress in Indian organizations. The findings of this research proved that the components identified and the structural relations presented as regards the component, “psychological factors of technostress” were suitable. The factors emerging from “psychological factors of technostress” also indicate that in technology-driven business environment, with ever increasing complexity and ubiquity of modern information and communication technologies; individuals perceive and prioritize different degrees of challenges leading to a range of psychological variants of technostress. Based upon an understanding of peoples’ perception of technostressors, management can identify the strategic gaps (if any) in the organization and can take further necessary actions to counter its adverse effect as well as reduce role conflict and role overload. Although the adverse effects of job stress in western and developed societies have been well documented (Viator, 2001) the study provides evidence that these relationships may spill over into cognitive differences and at interpersonal level in the Indian context. This study, thus, fills a research gap and enhances our understanding about employees’ perception about technostressors(s) in a society that is highly vulnerable to stress. This may be helpful for organizations to be successful and to achieve organizational objectives since psychological factors of technostress are directly related with a variety of desirable organizational outcomes. Recent studies emphasize the importance and impact of technostress suggesting that individuals experiencing Technostress have lower productivity and job satisfaction, and decreased commitment to the organization (Ayyagari et.al. 2011; Tarafdar et al. 2007). Thus signifying that the concern for psychological factors of technostress is not only being shared by employees but is a matter of concern for the employers as well for identifying critical cognitive, emotional and interpersonal issues that needs to be addressed and facilitating appropriate individual adjustments towards more effective and efficient utilization of information and communication technologies at both individual, organizational and systemic level.

### **Reference:**

Abdul-Gader, A.H. and Kozar, K.A., (1995), “The impact of computer alienation on information technology investment decisions: An exploratory cross-national analysis”. *MIS Quarterly*, 19, 4, 535–559.

Aborg, C. and Billing, A., (2003), “Health Effects of ‘the Paperless Office—Evaluations of the Introduction of Electronic Document Handling Systems,” *Behavior & Information Technology* (22:6), pp. 389-396.

Alexopoulos D. S. and Kalaitzidis I., (2004), “Psychometric properties of Eysench Personality Questionnaire- Revised (EPQ-R) short scale in Greece”. *Person-individual Diff.*, 3(7): 1205-1220.

Alge, B. J., (2001), “Effects of Computer Surveillance on Perceptions of Privacy and Procedural Justice,” *Journal of Applied Psychology* (84:6), pp. 797-804.

Ayyagari R., Grover V. and Purvis R. (2011), "Technostress: Technological Antecedents and Implications", *MIS Quarterly* Vol. 35 No. 4 pp. 831-858

Barley, S.R., (1990), "The alignment of technology and structure through roles and networks". *Administrative Science Quarterly*, 35, 1, 61–103.

Beek. J.H. (1998), "The Effects of the Number of Roles, the Time Spent in Different Roles and Selected Demographic Variables on Burnout und Job Satisfaction among Iowa Lutheran clergy". *Dissertation Abstracts International Section A: Humanities and Social Sciences*, 58: 3173.

Bluen, Stephen D. and Julian Barling (1988), "Psychological Stressors Associated with Industrial Relations," in *Causes, Coping and Consequences of Stress at Work*, Cary L. Cooper and Roy Payne, eds., Chichester, UK: Wiley, 175–205.

Brillhart, P.E., (2004), "Technostress in the workplace: Managing stress in the electronic workplace", *Journal of American Academy of Business*, 5, 1–2, 302–307.

Brod, C., (1984), "Technostress: The Human Cost of the Computer Revolution". Reading, MA: Addison-Wesley.

Chen, Peter Y. and Spector, P. E., (1992), "Relationship of Work Stressors with Aggression, Withdrawal, Theft and Substance Abuse: An Exploratory Study", *Journal of Occupational and Organizational Psychology*, 65 (3), 177–184.

Cooper, C.L.; Dewe, P.J.; and O'Driscoll, M.P., (2001), "Organizational Stress: A Review and Critique of Theory, Research, and Applications". Thousand Oaks, CA: Sage.

De Dreu, Carsten K.W. and Laurie R. W., (2003), "Task Versus Relationship Conflict, Team Performance, and Team Member Satisfaction: A Meta-Analysis," *Journal of Applied Psychology*, 88 (August), 741–749.

Diefendorff, E. C., and J. Kemp E., (2008), "It's the Nature of the Work: Examining Behavior-Based Sources of Work–Family Conflict Across Occupations," *Journal of Applied Psychology*, 93 (4), 883–892.

Eason, K.D., and Damodaran, L., (1981), "The needs of the commercial user". In M.J. Coombs and J.L. Alty (eds.), *Computing Skills and the User Interface*. New York: Academic Press, pp. 115–139.

Ezeani, S.I. (1998). *Research methods: A realistic approach*. Ibadan: Elohim Publishers.

Friedman, S. D., Christensen, P., & DeGroot, J. (1998). Work and life: The end of the zero-sum game. *Harvard Business Review*, 76, 119–129.

Eisher. CD. and Gitelson, R. (1983) 'A Meta-analysis of the Correlates of Role Conflict and Ambiguity', *Journal of Applied Psychology*. 68: 320-33.

Frese, M., (1987). "Human-Computer Interaction in the Office" in *International Review of Industrial and Organizational Psychology*, C. L. Cooper and I. T. Robertson (eds.), Chichester, England: Wiley, pp. 117-165.

Frone, M. R., (2000), "Interpersonal Conflict and Work and Psychological Outcomes: Testing a Model Among Young Workers," *Journal of Occupational Health Psychology*, 5 (2), 246-255.

Greenhaus, J.H, and Beulcll. N. J., (1985) 'Sources of Conflict between Work and Family Roles', *Academy of Management Review*, 10: 76-88.

Hind, P., (1998), "Captured by Technology," *CIO Magazine*, September, pp. 22-23.

Hofstede, G. (1980) *Culture's Consequences: International Differences in Work-related Values*. London: Sage.

Hudiburg, R.A., and Necessary, J.R., (1996), "Coping with computer-stress". *Journal of Educational Computing Research*, 15, 2, 113-124.

Hudiburg, R.A.; Pashaj, I.; and Wolfe, R., (1999), "A preliminary investigation of computer stress and the big five personality factors". *Psychological Reports*, 85, 2, 473-480.

Ivancevich, J.M.; Napier, H.A.; and Wetherbe, J.C., (1983), "Occupational stress, attitudes, and health problems in the information systems professional". *Communications of the ACM*, 26, 10, 800-806.

Jackson. S.E. and .Schuler, R.S. (1985) 'A Meta-analysis and Conceptual Critique of Research on Role Ambiguity and Role Conflict in Work Settings, *Organizational Behavior and Human Decision Processes*, 36: 16-78.

Joshi, K., (1989). "Role conflict and role ambiguity in information systems design"; *OMEGA: The International Journal of Management Science*, 17, 4, 369-380.

Kahn, R.; Wolfe, D.; Quinn, R.; Snoek, J.; and Rosenthal, R., (1964), "Organizational Stress: Studies in Role Conflict and Ambiguity". New York: Wiley.

Katz, D., and Kahn, R.L., (1978), "The Social Psychology of Organizations", 2d ed. New York: Wiley,.

Kay, W. K., (2000), "Role Conflict and British Pent-costal Ministers', *Journal of Psychology and Theology*, m: 119-24.

Kinman, G., and Jones, F., (2005). "Lay Representations of Workplace Stress: What Do People Really Mean When They Say They Are Stressed?," *Work & Stress* (19:2), pp. 101-120.

Kouzmin, A., and Korac-Kakabadse, N., (2000), “Mapping Institutional Impact of ‘Lean’ Communication in ‘Lean’ Agencies: IT Literacy and Leadership Failure,” *Administration and Society* (32:1), pp. 29-69.

Kudyba, S., and Diwan, R., (2002), “The impact of information technology on U.S. industry. Japan and the World Economy”, 14, 3, 321–333.

Kuhne, G.W. and Donaldson, J.F., (1995) 'Balancing Ministry and Management: An Exploratory Study of Pastoral Work Activities', *Review of Religious Research*. 37: 147-63.

Li, E.Y., and Shani, A.B., (1991), Stress dynamics of information systems managers: A contingency model. *Journal of Management Information Systems*, 7, 4, 107–130.

Liu, C., and Spector, P. E., and Lin S., (2007), “Cross-National Job Stress: A Quantitative and Qualitative Study,” *Journal of Organizational Behavior*, 28 (March), 209–239.

Lu, L., Kao, S. F., Cooper, C. L. and Spector, P. E. (2000), “Managerial stress, locus of control and job strain in Taiwan and UK: a comparative study”, *International Journal of Stress Management*, 7, 3, 209–26.

Luthans, F., Avey, J. B., Avolio, B. J., Norman, S. M., & Combs, G. M., (2006). “Psychological capital development: Toward a micro-intervention”. *Journal of Organizational Behavior*, 27(3), 387–393.

Luthans, F., Avey, J. B., & Patera, J. L., (2008). “Experimental analysis of a Web-based intervention to develop positive psychological capital”. *Academy of Management Learning and Education*, 7(2), 209–221.

Luthans, F., Avolio, B., Avey, J. B., & Norman, S. M., (2007). “Psychological capital: Measurement and relationship with performance and job satisfaction”. *Personnel Psychology*, 60(3), 541–572.

Luthans, F., Youssef, C. M., & Avolio, B. J., (2007), “Psychological capital: Developing the human competitive edge”. New York: Oxford University Press.

Markham, W.T. and Bonjean, C. M., (1996), "Employment Status and the Attitudes and Behavior of Higher Status Women Volunteers. 1975 and 1992: A Case Study", *Sex Roles*, 34: 695-716,

Marcoulides, G. A., (1989), “Measuring computer anxiety: The computer anxiety scale”. *Educational and Psychological Measurement*, 49, 3, 733–739.

Markus, M.L., (2004), “Techno-change management: Using IT to drive organizational change”. *Journal of Information Technology*, 19, 1, 4–20.

- Monahan. S. C., (1999). "Role Ambiguity among Protestant Clergy: Consequences of the Activated Laity", *Review of Religious Research*, 41: 79-94.
- Mulki, Jay P., Fernando J. and Locander, W. B., (2008), "Effect of Ethical Climate on Turnover Intention: Linking Attitudinal- and Stress Theory," *Journal of Business Ethics*, 78 (12), 559–574.
- Narayanan, L., Menon, S., and Spector, P. E., (1999), "Stress in the Workplace: A Comparison of Gender and Occupations," *Journal of Organizational Behavior*, 20 (1), 63–73.
- Nelson, D.L., and Kletke, M.G., (1990), "Individual adjustment during technological innovation: A research framework. *Behavior and Information Technology*", 9, 4, 257–271.
- Ngo. H.Y. and Lau, C. M., (1998), "Interferences between Work and Family among Male and Female Executives", *Research and Practice in Human Resource Management*. 6: 17-34.
- Rizzo, J. R., Robert J. House, and Sidney L. Lirtzman (1970), "Role Conflict and Ambiguity in Complex Organizations," *Administrative Science Quarterly*, 15 (June), 150–162.
- Sandblad, B., Gulliksen, J., Aborg, C., Boivie, I., Persson, J., Goransson, B., Kavathatzopoulos, I., Blomkvist, S., and Cajander, A., (2003), "Work environment and Computer Systems Development," *Behavior & Information Technology* (22:6), pp. 375-387.
- Schieman, Scott, and Sarah Reid, (2008), "Job Authority and Interpersonal Conflict in the Workplace," *Work and Occupations*, 35 (3), 296–326.
- Sethi, V.; King, R.; and Quick, J. (2004), "What causes stress in information system professionals?", *Communications of the ACM*, 47, 3, 99–102.
- Spector, P. E., (1987), "Interactive Effects of Perceived Control and Job Stressors on Affective Reactions and Health Outcomes for Clerical Workers," *Work and Stress*, 1 (2), 155–162.
- Straub, D., and Karahanna, E., (1998), "Knowledge Worker Communications and Recipient Availability: Toward a Task Closure Explanation of Media Choice," *Organization Science* (9:2), pp. 160-175.
- Tarafdar, M., Tu, Q., Bhanu, S., Raghunathan and Raghunathan, T.S., (2007), *Journal of Management Information Systems / Summer 2007*, Vol. 24, No. 1, pp. 301–328. M.E. Sharpe, Inc.
- Tennant, C. 2001. "Work-Related Stress and Depressive Disorders," *Journal of Psychosomatic Research* (51), pp. 697-704.
- Viator, R.E., (2001), *The Association of Formal and Informal Public Accounting Mentoring with Role Stress and Related Job Outcomes*. *Accounting, Organizations and Society*. 26: 73-93.

W.H.O., (2005), “Facing the Challenges, Building Solutions” in WHO European Ministerial Conference on Mental Health, Helsinki, Finland, January 12-15,

Weil, M.M. and Rosen, L.D., (1997), “Technostress: Coping with Technology @work @home @play”. New York: John Wiley.

Young, C. A., and David L. C., (2010), “Burned! The Impact of Work Aspects, Injury, and Job Satisfaction on Unionized Cooks’ Intentions to Leave the Cooking Occupation”, *Journal of Hospitality and Tourism Research*, 34 (1), 78–102.

Zuboff, S., (1988), “In the Age of the Smart Machine: The Future of Work and Power”. New York: Basic Books.