

Impact of job Stress on Employee Performance: A Study of Software Professionals in Kerala

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Abstract

Paradigm shift in the concept and context of work brought about remarkable changes in the work world of the 21st century. Digital revolution in the form of continuous refinements in the IT world and IT sector added more to this shift. Work today is no longer 'result oriented', it is 'people oriented'. No place for personal consideration and relations anywhere. Employees are evaluated on the basis of their performance and contribution to the organization. In the struggle to prove themselves 'fit' for the job, workers are exposed to magnified levels of stress and strain. Software professionals too are not an exception to the rule. They are those agile technology workers functioning under dynamic technological environment, where the up gradations are so fast and unpredictable. The present study evaluates the parameters that contribute to job stress among software professionals in Kerala and assesses the impact of each of these dimensions on the performance of the employees from a sample study of 438 software professionals. The study throws light to the fact that sources of job stress are inversely related to job performance and role ambiguity exerts great impact on job performance along with salary and rewards, fear of obsolescence and workload. Thus the study calls for the alarming need to take policy actions from the part of the Government and IT companies to mitigate the negative impact of job stress on the performance of Software professionals in Kerala.

Key Words: Digital revolution, Job stress, Software Professionals, Agile technology workers, Role ambiguity, Fear of obsolescence.

Introduction

Acceleration of world trade through the broadening of cross border transactions and also through the proliferation of digital revolution made continuous refinements in the work culture, work methodologies and eventually the boundary between work place and home. The traditional 'work around the clock' concept has subjected to a paradigm shift on account of alternative work timings and patterns of the twenty first century work environment. Work today is 'result oriented' rather than 'people oriented'. It is only the performance that matters. In the struggle to manifest themselves as appropriate for the work, workers are exposed

to magnified levels of stress and health related problems. When work is denoted as the source of self fulfillment in the past, it is an originator of stress, dissatisfaction and humiliation (Terkel, 1972 as cited in Joshi, 1999) nowadays. Vast studies in the area of job stress recognized stress as an alarming worldwide issue in many organizations, occupations, employees and employers (P. Misra & Srivastava, 2010). Stress is remarked as the 'health epidemic of this century (Fink, 2016). It is universal, dangerous and enduring (Parmar, Vyas, & Tapariya, 2011). Even a twenty first century typical worker is exposed to job stress, then what about the professionals in the IT sector, so called 'techies', whose work is fully technology oriented, requires logical and critical thinking, follows no work timings and adherence to predefined work schedules?

Work in IT sector is distinctive that it has strong affiliation to the world market and is commonly performed 'virtually' (Abraham, 2005; Ranjit & Mahespriya, 2012; Varghese, 2013). It functions underneath 24x7 principle. Added to this, work in IT sector is project based and mostly performed either at the individual level or at team level. Clients in international destinations particularly in America and European countries, outsource giant chunk of their work with time deadlines to IT corporations in India. IT industry paved the means for transformation of the Indian economy and changed the perception of India within the worldwide economy. India's competitive advantage in value, that is three to four fold less costly than the U.S., keeps its distinctive merchandising position in the international sourcing market. Most of the 'techies' in the sector work for over eight hours per day and forty eight hours per week. The industry is one amongst the key sectors powering the Kerala economy too. Kerala is one among the highest Indian states with large pool of technical graduates in information technology and engineering services. Majority of these graduates are employed in IT firms playing their jobs as software professionals.

Occupational stress and its impact on job performance

According to Selye, stress is "the non specific response of the body to any demand made upon it" (Selye, 1976a, p.137). Stress refers to all the non specifically induced changes (Selye, 1976b) that may create physiological, mental and behavioural reactions within a biological system. According to Ross and Altmair (1994, p.1) "the term stress is so ubiquitous that it is used as a noun when we talk about being under stress, as a verb when events are stressing us and as an adjective, when we use the term - modern life has become stressful". Thus, the concept of stress is "multidimensional and composite, including emotion and arousal" (Moal, 2007, p.3). Job stress is denoted as a mismatch between one's aptitudes, capacities and demands of the job and needs supplied by the job environment (French, Rogers, & Cobb, 1974). Excessive demands are the product of individual's interaction with the surroundings pinpointing that the individual isn't fully equipped to handle a selected scenario (Jamal & Baba, 2000)

Software professionals are those agile technology workers functioning under dynamic technological environment, where the upgradations are so fast and unpredictable. Job/work/occupational stress is prevalent

among software professionals in varying degrees (Ajala, 2011; Bhat, Shet, Nayanatara, & Ganaraja, 2014; Ganesan, Mahalakshmy, & Kalaiselvan, 2011; Gautami & Anupama, 2016; Kumar & Siddique, 2011; A. Misra, 2015). Review of literature showed that job stress is a growing concern (Altangerel, Ruimei, Elahi, & Dash, 2015; Bickford, 2005; Damle, 2012; Mirela & Madalina-Adriana, 2011; Ngomani, 2015) for workers in IT sector particularly those designated as software professionals. Job in IT sector is distinctive in the sense that it requires high level of cognitive and technical skills (Carayon, Schoepke, Hoonakker, Haims, & Brunette, 2006; Gallagher, Kaiser, Simon, Beath, & Goles, 2010; McMurtrey, Downey, Zeltmann, & Friedman, 2008; Young, 2012). As an extreme difficult space of labour requiring high level of technical skills, software professionals in the IT sector are exposed to several antecedents of stress like workload, time pressure, demand, role ambiguity, skill variety, role conflict, strained workplace relationships, responsibility towards the organization, keeping themselves updated with latest technological developments, job insecurity, unfair reward system etc. (Bamba, 2016; Ibrahim, 2013; Jalagat, 2017; Karunanithy & Ponnampalam, 2013; Lopes & Kachalia, 2016; Priya, 2016; Shahid, Latif, Sohail, & Ashraf, 1998; Varghese, 2013).

Studies report wide variety of sources through which stress originates. These sources include intrinsic job stressors (Cooper & Marshall, 1976; Dua, 1994) namely workload (French & Caplan, 1972; Beehr & Newman, 1978; Hendrix, Spencer & Gibson, 1994; Ivancevich, Matteson, & Preston, 1982; Sutherland & Cooper, 2000), work pace (Kraan et al., 2014; O'Driscoll, Brough, Timms, & Sawang, 2010; Smith, Conway, & Karsh, 1999), long working hours (Dhar & Bhagat, 2008; Ibtisam, Gichinga, & Ahmed, 2015; Kavanagh, 2005; Kumari, Joshy, & Pandey, 2014), shift work (Gerber, Hartmann, Brand, Holsboer-Trachsler, & Puhse, 2010; Phillips, Magan, Gerhardstein, & Cecil, 1991), time pressure (Babu, Sathyanarayana, Ketharam, Kar, & Detels, 2015; Ganapathi, 2014; Parasuraman & Alutto, 1981; Iyer, 2011), repetitive work (Babu, 2012; Guise, 1988; Johansson & Aronsson, 1984; Kornhauser, 1965; Mda, 2010), lack of autonomy (Babu et al., 2015; Hendrickson, 2007; Karasek & Theorell, 1990), poor working environment (Dhar & Bhagat, 2008; Mazumdar, Haloi, & Mazumdar, 2011; Routray & Satpathy, 2007; Siu, 2003), technological advancements (Almanae, 2015; Bickford, 2005; Saidel & Cour, 2003; Tarafdar, Tu, & Ragu-Nathan, 2010), high level of skills, unchallenging work (Dhar & Bhagat, 2008; Mathi & Malathi, 2016), lack interest and aptitude (Priya, 2016) and insufficient training (Krishnamurthy & Prabakaran, 2015; D. Menon, 2014; Sutherland & Cooper, 2000;).

Other sources of stress in the organizational context include role stressors (Dobрева-Martinova, Villeneuve, Strickland, & Matheson, 2002; Sudershan, 2012; Whisler, 2014), career advancement aspects (David, 2014; Karunanithy & Ponnampalam, 2013; Rao & Chandraiah, 2012), job insecurity (Ashford, Lee, & Bobko, 1989; Rajeswari & Anantharaman, 2003; Tarafdar, D'Arcy, Turel, & Gupta, 2015; Wilson, Larson, & Stone, 1993), fear of obsolescence (Amoako, Gyamfi, Emmanuel, & Batola, 2017; Culmer, 2012; Dwamena, 2012; Rajeswari & Anantharaman, 2003; Routray & Satpathy, 2007), frequent appraisals and evaluations (Agarwal, Narayanan & Jain, 2014; Bisht, 2010; Defrank & Ivancevich, 1998; Ross & Altmeir,

1994; Sethi, King & Quick, 2004), unreasonable rewards (Chandra & Sharma, 2010; Ali, Raheem, Nawaz, & Imamuddin, 2014; D. Menon, 2014), poor interpersonal relations (Kang & Singh, 2006; Keshavarz & Mohammadi, 2011; Yang et al., 2015) and work life conflict (Qureshi, 2006; Ram, Kurpad, & Swaminathan, 2014). In addition organizational structure and climate (Cooper & Marshall, 1976; Kang & Singh, 2006; Parker & Decotiis, 1983), level of employment (Cope, 2003; Lee, Foo, & Cunningham, 1995; Marinaccio et al., 2013; Nydegger, 2011; Shah, 2003) and personality characteristics (Patel, 1992; Robbins, 1993) such as locus of control (Chen & Silverthorne, 2008) and personality type (Batigun & Sahin, 2006; P. Menon & Natesan, 2012; Sivakumar, 2012) also have a bearing on the magnitude of stress confronted by employees.

Job performance is defined as the execution of a particular activity, the attainment of which is to be appraised in terms of pre-defined benchmarks of accuracy, completeness, economy and speed (Bierbusse & Siesfeld, 1997). Job performance can be considered as “an activity in which an individual is able to accomplish successfully the task/goal assigned to him, subject to the normal constraint of the reasonable utilisation of available resources” (Jamal, 1984, p.2).

Job stress is often described as closely associated with performance and have serious implications on individual and organizational performance. Stressed employees are most probably unhealthy, poorly motivated, less productive and less safe at work (Goswami, 2015; Lopes & Kachalia, 2016; Park, 2007). Sources of job stress contribute to reduced job satisfaction, reduced quality of labour, high worker’s turnover, absenteeism, reduced worker overall performance and reduced organizational performance. Too much stress is clearly evidenced by a substantial decline in performance and organizational effectiveness (Borucki, 1987; Welford, 1973). The relation of stress to job performance or the impact of occupational stress on performance is a topic of academic interest over the years. A negative relation between stress and performance was proved in various sectors of the society such as banking industry (Kakkos & Trivellas, 2011; Shahriari, Meyvand, Koolivand, & Maleki, 2013; Shaikh, Akram, Rizwan, Kousar, & Malik, 2013), hospital industry (Kazmi, Amjad, & Khan, 2008; Nabirye, 2010), hotel industry (Olaniyi, 2013), high tech industries (Hsieh, Huang, & Su, 2004), business (Dar, Akmal, Naseem, & Khan, 2011) and educational sector (Riyadi, 2015; Suandi, Ismail, & Othman, 2014). The result of these studies highlight that too much work stress impairs job performance. However, some studies observed no impact of sources of job stress on job performance (Dissanayaka, 2014; Manderson, 2014; Manzoor, Awan, & Mariam, 2012).

Research Gap and Objectives

Though there are plenty of literature that explored the sources of job stress and its impact on job performance in various sectors of the economy, similar studies among software professionals in the IT industry are scant in the literature and no such study have been found to be undertaken in the State of Kerala in India. It is essential that the software companies and the government must understand how job stress impacts the performance of the professionals in the sector for taking adequate measures to reduce the ill effects

of stress. This study aims to fill the void in the literature by identifying which aspects of job stress impacts the performance of software professionals and hence the study is quite relevant and timely from the point of view of both academic and IT industry. The study attempts to address the following research question. What are the sources of job stress among software professionals in Kerala and whether these dimensions have effect on job performance. Based on the above research question, the specific objective of the study was to explore the sources of job stress and to assess the impact of these dimensions on job performance among software professionals in Kerala.

Materials and Methods

The study is empirical in nature and survey method has been used to collect primary data. Software professionals working in the IT sector of Kerala form the population of the study. The respondents were identified in different stages. As the first stage of sample selection, IT parks in Kerala set up by the government of Kerala such as Technopark (Trivandrum - pioneering IT park in India), Infopark (Kochi) and Cyberpark (Kozhikode) were selected due to the concentration of IT companies in the area and they clearly portray the IT work environment and culture. So, as a second stage, 56 companies from Kerala, which were registered with NASSCOM as on 1st March 2017, having offices in the selected IT parks of Kerala were identified. Out of these 56 companies, 42 companies were selected by simple random sampling method.

In the third stage, software professionals from these companies with minimum one year of experience were selected as samples. Employees less than one year of experience were excluded because “they may have additional stress on account of adjusting to a new firm, working fulltime after being a student etc. and they may not have adequate exposure to the software development process” (Rajeswari & Anantharaman, 2003). Thus a total of 1,150 questionnaires were distributed and 438 usable responses were received. The questionnaire was pilot tested on 51 respondents.

Measurement of Sources of Job Stress and Performance

An exploratory qualitative study was made among 25 software professionals in Kerala to gain insights about the key dimensions of sources of job stress. Professionals evaluated various dimensions framed on the basis of extensive literature review. Based on the review of literature and qualitative study, 34 items were finally identified to measure the sources of job stress among software professionals in Kerala and they are exhibited in Table 1. The responses were observed on a five point Likert scale from “Strongly Agree” (5) to “Strongly Disagree”.

Table 1 Measures on Sources of Job Stress

Code	Items
SS1	On account of heavy workload I have to work overtime rather than the normal working hours
SS2	I feel pressure to a certain extent due to heavy workload

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- SS3** I have to struggle hard to complete the assigned tasks as per specifications
 - SS4** I do not have enough time to complete the assigned tasks
 - SS5** Serving clients in different time zones increase my time pressure
 - SS6** I am confused as to what new technology to learn and not to learn
 - SS7** My current knowledge and skills will be outdated in the near future
 - SS8** I am concerned about the present retrenchment policies of the company
 - SS9** I am afraid of compulsory layoff from my company at any time
 - SS10** There is a possibility in my company to replace an experienced professional hand with a fresh professional as a cost reduction strategy
 - SS11** Communication gaps and chaos hinder better work relations
 - SS12** Unclear and changing client requirements create unhealthy relation with them
 - SS13** Frequent modifications as per changing client requirements cause a lot of hardships in the relationship
 - SS14** I have a clear idea regarding how the work is to be done **
 - SS15** I know exactly what is expected of me **
 - SS16** Explanation is clear about what has to be done in my job **
 - SS17** I do not get enough time to spend with my family members
 - SS18** I am not able to switch off at home
 - SS19** My job makes it difficult for me to enjoy free time outside work
 - SS20** I have no time for my hobbies/personal interests
 - SS21** My work demands high level of logical skills and expertise
 - SS22** My job requires continuous guidance, monitoring and evaluation
 - SS23** I have to exert greater level of attentiveness and patience every moment
 - SS24** My job compels me to work fast
 - SS25** I do not get enough appreciation on a work well done
 - SS26** Prospects for promotion and career growth are not clearly defined within the organization
 - SS27** There are no standardised procedures in the company to evaluate employee performance
 - SS28** Rivalries and lack of trust among professionals hinder career growth and development
 - SS20** Promotions are based on irrational considerations other than performance
 - SS30** My pay is poor compared to those of people in other companies with similar qualifications
 - SS31** I am not fairly rewarded according to my performance
 - SS32** Bonuses and allowances are insufficient to meet my needs
 - SS33** I will be given a fair hearing when I appeal **
 - SS34** The management takes prudent action upon grievances reported **
-

**Reverse coded statements

Performance is a multidimensional construct which forms organizational goal directed behaviours and actions (McCloy, Campbell, & Cudeck, 1994). So, multi item measures were used to capture the job performance of software professionals in Kerala. The employee performance is examined in terms of overall performance measured through 30 items captured on a five point Likert scale from “Strongly Agree”(5) to “Strongly Disagree” (1) as given in Table 2.

Table 2 Measures of Job Performance

Code	Items
JP1	I work overtime to complete my projects
JP2	I acquire new skills and update myself to the latest developments in Technology
JP3	I exhibit punctuality on all job related matters
JP4	I work closely with others in doing in my work
JP5	I voluntarily help new employees to settle in their jobs
JP6	My office hours are not wasted in loose talks
JP7	I do not take unnecessary off from work
JP8	I do not take undeserved work breaks
JP9	I am able to follow a methodical approach in understanding and solving problems
JP10	Prior intimation is given to authorities on absence
JP11	Work done by me is usually free from errors
JP12	I have never been asked to redo the work
JP13	I complete the work within the stipulated time
JP14	Often I fail to attain my targets **
JP15	I am able to get promotions/ salary hike based on my work performance
JP16	I perform the assigned tasks to the best of my abilities
JP17	My response to client requirements is quick
JP18	I am able to understand the specific project demands very fast
JP19	I am able to work with and manage different groups/clients simultaneously
JP20	I am able to win the confidence of my higher ups to discharge whatever tasks assigned to me
JP21	I am confident to perform any tasks related to my job
JP22	Once the task is assigned, I will perform it without being asked to do
JP23	I always handle tasks with proficiency
JP24	I always apply the best methods for doing work
JP25	I sacrifice important part of my work due to schedule pressure **
JP26	I put forward new ideas and suggestions for improving team performance
JP27	I have never given any excuse in the execution of assigned tasks
JP28	I am updated with new developments in technology to execute any assigned task
JP29	I am able to create solutions which are elegant and simple
JP30	I am able to get top scores on my performance feedback

** Reverse coded statements

Sample Profile

Out of the total sample of 438, 62 per cent were males and 38 per cent were females. This is consistent with the findings of past studies (Abraham, 2005, M. A. Prasad, et al., 2014; Ramesh, Joseph, Kiran, Kurian & Babu, 2016; Rashidi & Jalbani, 2009) that males constitute more than ½ of the workforce in the sector. Representation of unmarried and married employees were 51 and 49 per cent respectively. 42 per cent of the employees fall in the age group 26 - 30 years. 23 per cent have below 25 years of age and remaining 35 per cent are of above 30 years of age. Consistent with the findings of Babu et al. (2015) and Ramesh et al. (2016),

the present study also found that large portion of software employees fall in 26 - 30 years of age. Graduates account for 58 per cent and postgraduates, 42 per cent. Around 70 per cent earn a monthly income up to Rs.50,000.

Analysis on work characteristics indicates that majority of the professionals are from large (above 500 employees) and medium sized companies (100-500 employees). Respondents from small companies account for only 19 per cent (below 100 employees). Half of the respondents perform middle level software jobs. Above 70 per cent, work for more than 8 to 10 hours. Finding of the study corroborates the findings of Bastian and Vivekanandan (2014) that most of the software professionals work for more than 8 hours per day. Besides, more than 70 per cent have experience up to 3 and > 3 - 6 years. Very few are working in the company/industry over a period of 9 years.

Exploratory Factor Analysis

Exploratory factor analysis using principal component analysis (PCA) was performed with the stipulation that the eigen value of each generated factor is more than 1. EFA was conducted on 34 measures of sources of job stress and 30 measures of job performance. Correlation matrix assessed the suitability of the data for factor analysis, and found enough correlation between the measures. The Kaiser-Meyer-Okin value reached 0.891 (sources of job stress) and 0.913 (job performance), which was considered meritorious according to Kaiser. The significance level of Barlett's test of sphericity was extremely small (0.000), supporting the factorability of the correlation matrix. Communalities of the 34 measures on sources of job stress ranged from 0.511 to 0.722 and 30 measures of job performance, from 0.502 to 0.714.

As presented in Table 3, PCA revealed the presence of 11 components for the sources of job stress that altogether explained 56.97% of the variance. After compressing the data to eleven components, Varimax rotation was performed and the rotated factors with their item constituents and factor loadings are also given in Table 2. Each of the eleven factors were suitably labelled based on the characteristics of the composing measures.

Dimensions	Code	Mean	SD	Factor loadings	Eigen Value	Cronbach's Alpha
Appraisal and Promotion Issues	SS25	3.14	1.11	0.594	9.07	0.807
	SS26	3.27	1.08	0.621		
	SS27	3.12	1.15	0.669		
	SS28	3.25	1.04	0.684		
	SS29	3.08	1.04	0.569		
Work life collision	SS17	3.20	1.16	0.676	3.08	0.835
	SS18	3.20	1.11	0.624		

	SS19	3.21	1.17	0.641		
	SS20	3.09	1.17	0.648		
Workload	SS1	3.88	1.05	0.700	2.44	0.719
	SS2	3.64	1.13	0.744		
	SS3	4.10	0.85	0.540		
Cognitive and other demands	SS21	4.27	0.73	0.711	1.96	0.753
	SS22	4.16	0.84	0.735		
	SS23	4.14	0.73	0.658		
	SS24	4.01	0.84	0.604		
Job insecurity	SS8	3.50	0.95	0.753	1.67	0.699
	SS19	3.18	1.13	0.764		
	SS10	3.36	1.14	0.622		
Strained relations	SS11	3.96	0.94	0.580	1.45	0.682
	SS12	3.66	1.06	0.805		
	SS13	3.82	0.95	0.793		
Role ambiguity	SS14	3.86	0.80	0.805	1.39	0.727
	SS15	3.89	0.82	0.830		
	SS16	3.63	0.91	0.724		
Fear of obsolescence	SS6	3.43	1.08	0.656	1.29	0.667
	SS7	3.43	1.14	0.610		
Salary and Rewards	SS30	3.43	1.09	0.729	1.19	0.773
	SS31	3.34	1.05	0.764		
	SS32	3.50	1.11	0.701		
Grievance redressal mechanism	SS33	3.38	0.89	0.617	1.08	0.756
	SS34	3.37	0.89	0.584		
Time pressure	SS4	3.36	1.02	0.548	1.03	0.697
	SS5	3.42	1.03	0.632		

EFA using PFA was performed on 30 measures of job performance which altogether explained 57.56% of the variance. Rotation revealed the presence of eight components. After reducing the data to eight components, Varimax rotation was performed and the rotated factors and their item constituents which were suitably labelled based on the characteristics of the composing measures are given in Table 4.

Table 4 Descriptive Statistics on Constructs of Job Performance					
Factor label	Items	Mean Values	SD	Eigen Values	Cronbach's Alpha
Work Efficiency	JP17, JP18, JP19, JP20, JP21, JP27	3.79	0.55	9.45	0.798
Personal Resourcefulness	JP23, JP24,	3.79	0.56	1.93	0.781

	JP26,JP28, JP29				
Self Reported Responsibility	JP5,JP7,JP8, JP10,JP16,JP22	3.91	0.56	1.65	0.735
Timeliness	JP3, JP6, JP9	3.77	0.62	1.34	0.717
Output Quality	JP11,JP12,JP13	3.58	0.66	1.29	0.745
Result Orientation	JP1,JP2, JP4	3.88	0.63	1.22	0.725
Professional Competence	JP14, JP25	3.05	0.79	1.09	0.689
Performance Feedback	JP15, JP30	3.52	0.74	1.01	0.692
Overall Job Performance	30	3.80	0.42	9.45	0.901

In the study, Cronbach's coefficient of alpha for all factors on sources of job stress except time pressure, fear of obsolescence, job insecurity and strained relations are well above 0.70 and the alpha coefficient of time pressure (0.697), fear of obsolescence (0.667), job insecurity (0.699) and strained relations (0.682) is much higher than 0.60 (Hair, Black, Babin, & Anderson, 2015) and is very close to the required minimum of 0.70 (Nunnally, 1978). As regards job performance is considered, alpha coefficients for work efficiency, personal resourcefulness, self reported responsibility, timeliness, output quality and result orientation are much higher than 0.70, the norm fixed by Nunnally (1978). However, in respect of professional competence (0.689) and performance feedback (0.692), the values are just below 0.70. Eventhough it is less than 0.70, it is very close to 0.70 and much higher than 0.60 as indicated by Hair et al. (2015), Loewenthal (2001) and Sekaran (2003). Reliability score of overall job performance is 0.901.

Regression Analysis

Stepwise multiple regression analysis is performed to assess the degree of impact of various sources of job stress (predictor variables) on job performance (dependant variable). Multi-collinearity is indicated when Tolerance value is below 0.20 and VIF is more than 5 in a regression model. Tolerance value ranges from 0.816 to 0.952 and VIF from 1.096 to 1.226 for all the predictor variables. Therefore, there is no reported problem of collinearity. Auto correlation is calculated using Durbin-Watson test. As the value lies between 1.5 and 2.5, there is no autocorrelation between the variables and are found to be independent observations. Summary of the multiple regression analysis along with R^2 and adjusted R^2 values are indicated in Table 5.

Model	R^2	Adjusted R^2	Beta(β)	t-value	Sig.	Collinearity	
						Tolerance	VIF
(Constant)	0.487	0.237		14.99	0.000*		
Role Ambiguity			-0.456	-10.58	0.000*	0.952	1.050
Salary and Rewards			-0.123	-2.67	0.008*	0.842	1.118
Fear of Obsolescence			-0.110	-2.36	0.019*	0.816	1.226
Workload			-0.102	-2.32	0.021*	0.912	1.096

Predictors (constant): RA, SaR, FO and WL

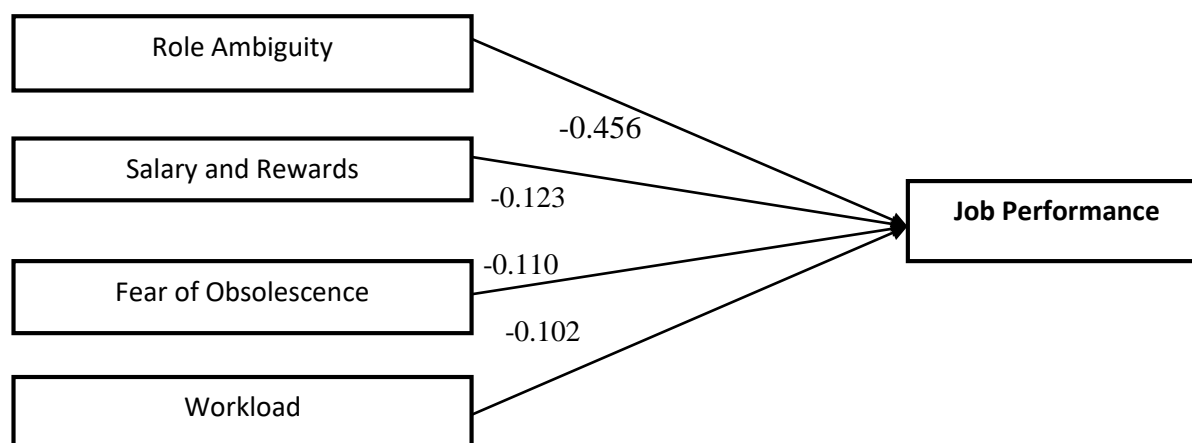
Dependent Variable: Job Performance

(*Significance at 5 per cent level)

As per Table 5, R value is 0.487. R^2 value is 0.237 and the adjusted R^2 value is 0.230. Adjusted R^2 score indicates the per cent of total variation explained by all the predictor variables. β value for *Role ambiguity* -0.456 ($t = -10.58$), *Salary and rewards* -0.125 ($t = -2.67$), *Fear of obsolescence* -0.110 ($t = -2.36$) and *Workload* -0.102 ($t = -2.32$) are significant at 5 per cent level ($p < 0.05$). In respect of other eight sources of job stress such as appraisal and promotion issues, work-life collision, job insecurity, time pressure, strained relations, cognitive and other demands and grievance redressal mechanism, t-values are not significant at 5 per cent significance level ($p > 0.05$). The impact of sources of job stress on the overall job performance of software professionals in Kerala is given in Figure 1.

Figure 1

Impact of Sources of Job Stress on Job Performance



Discussions and Managerial Implications

Out of the eleven sources of job stress, four sources of job stress were emerged as the predictors of job performance. Considering the impact of each of the predictor variables on job performance, β is highest for role ambiguity (-0.456). Therefore it is emerged as the strongest predictor of job performance followed by salary and rewards, fear of obsolescence and workload. All these sources of job stress have significant negative impact on job performance of software professionals in Kerala. This calls for the need to pay special attention to these four dimensions of job stress. As a way to enhance the job performance of software professionals, efforts should be made to reduce the extent of these sources of job stress as far as possible.

Clear definition of the roles and due delegation of authority for executing the same may help to reduce role ambiguity. There should be proper flow of information from the senior level to the middle and lower levels. Changes in client requirements and specifications should be communicated in time. If the work is of sequential in nature, there should also be clarity on what one should do in the absence of the other professional

without delaying the completion time. It is a fact that global economic recession slowed down the IT industry and that companies are following the strategy of cost advantage. This advantage is usually attained by cutting down employee benefits or through implementing new retrenchment policies. Even though performance based appraisal systems are practiced by many companies, appraisals may be either biased or not systematic. Proper monitoring should be made at all levels to ensure that the professionals are not exploited and are given reasonable salary and other emoluments. A minimum pay scale and payment structure should be developed for the entire IT industry considering mode of operations, size of the company and its profitability. Profit sharing and stock option schemes can be efficiently implemented along with the performance based appraisal system.

Fear of obsolescence negatively impacts job performance. Companies provide induction or orientation training at the start of one's career. After that it is the responsibility of the employee to acquire additional talents. Skill sets vary from project to project. They are confused about what technology to learn and not to learn. So, they should be given proper guidance for the timely acquisition of skills and the proper development of the skills. Assignment of tasks in accordance with the tastes and talents of the employees will make them proficient in that area. Moreover, job enrichment by changing the job content and providing challenging tasks and opportunities to the professionals at middle and entry levels with added responsibilities help in eliminating the fear of obsolescence.

Workload is also found to have a negative impact on job performance. There is a possibility that neurological capabilities such as concentration, reflex actions, speed and tolerance level declines with increase in age. So age can be considered as a decisive factor while assigning duties. Relaxation programmes such as indoor and outdoor games, yoga and meditation can be recommended to the employees. Further, strict measures should be taken to ensure that the employees are not working for more than 8 hours per day. The industry is out of the purview of the Factories Act. Policies should be implemented by the government to ensure that no one works for more than more than 8 hours per day even on compulsion. Authorities may even think about developing a separate Act catering to the IT Industry for safeguarding the interests of employees. They should be provided with sufficient work breaks and off days. Short breaks after every 2 hours of working, off days after completion of each stage of the project may also be tried to reduce stress and enhance performance.

Limitations and scope for further research

The study focused on those companies situated at Infopark, Technopark and Cyberpark which were registered with NASSCOM and was confined to software professionals alone. Other areas in the IT industry and companies outside the three technology parks have been excluded from the study. Therefore, special care should be taken while generalising the findings of the study. The low R square reported by the current research to predict job performance represents an important limitation. Hence, there is a need to search for additional

measures and constructs that will improve the predictive power of the model. The study was more qualitative in nature. Additional research efforts are needed to evaluate the performance of software professionals quantitatively which would improve the validity of the findings.

Future research can be made to replicate the present study in the entire IT industry incorporating the ITeS and Hardware sector also. A holistic study of IT companies in Kerala can also be made by selecting employees from various IT companies all over Kerala and there is a scope for comparative study among professionals working at technology parks and outside. It is also possible to make a study of similar type among professionals from Kerala who work abroad, to understand the influence of culture and the impact of global economic trends on job stress and employee performance in IT industry. The impact of each of the sources of job stress on each of the dimensions of job performance can be thought of.

Concluding remarks

The study explored the sources of job stress among software professionals in Kerala and found that the job performance of the software professionals is dependent on role ambiguity, salary and rewards, fear of obsolescence and workload. Recent study reports focus on the aggravating problem of occupational stress among the professionals. In this situation, IT companies cannot afford to under estimate the importance of keeping an eye on these dimensions of job stress in an attempt to enhance individual and organizational performance. If it happens so, it will be a great curse to the Indian economy in terms of the overall investment and return from the blue chip sector, 'IT sector'.

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