

A Comparative Analysis: Causes of Stress Among The Employees And Its Effect on The Performance At The Workplace In Agricultural Research And Informaton Technology Sectors

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Abstract: The reported research study focuses on the wide spread silent issue the “Stress” and throws a light on a comparative analysis of causes of stress among the employees and its effect on the employee performance at the workplace in Agriculture Research Sector (ARS) and Information Technology Sector (ITS), and determine the level of differences if any, among both the sector employees. A survey of 150 employees each of the ARS and ITS respectively carried out to assess the twelve independent variables and its effect on employees’ performance a dependent variable. The descriptive analysis, correlation techniques and parametric statistics like t-test and F-tests carried out to arrive at the conclusions. To measure the reliability of the scale used for this research, and internal consistencies of the survey questionnaire, the reliability static Cronbach's alpha (C-alpha) is used. The C-alpha values for all the variables ranged from 0.60 to 0.74 for ARS from 0.64 to 0.84 for ITS, whereas the overall C-alpha values are, 0.74 and 0.84 for ARS and ITS respectively. The study concluded that the impact of occupational stress on performance for the ARS Employees is moderate and when compared with the ITS, which reported higher impact on its performance than ARS. The results indicate that the job related stress in general and the stress factor job security in particular effects the employee performance in IT sector. Health-wise, some employees had developed chronic neck and back pain, an effect of long sitting hours at work. The study was conducted in Metro city of Hyderabad, Telangana, India.

Keywords: Job related stress, Agricultural Research Sector (ARS), Information Technology Sector (ITS), performance, Cronbach’s alpha, stress

Introduction

The origin of the concept of stress predates antiquity. The term derived from the Latin word “*Stringere*” to mean hardship, strain, adversity or affliction. The occupational stress has been of great concern to employees and other stakeholders of organizations. The researchers agree that occupational stress is a serious problem in many organizations (Cooper and Cartwright, 1994; Varca, 1999; Ornelas and Kleiner, 2003). The cost of occupational stress is very high in many organizations in recent times. For instance, the International Labour Organisation (ILO) reports that inefficiencies arising from occupational stress may cost up to 10 percent of a country’s GNP (Midgley, 1996). Occupational stress is defined as the perception of a discrepancy between

environmental demands (stressors) and individual capacities to fill these demands (Topper, 2007; Vermut and Steensma, 2005; Ornels and Kleiner, 2003). Christo and Pienaar (2006) argued that the causes of occupational stress include perceived loss of job and security, sitting for long periods of time or heavy lifting, lack of safety, complexity of repetitiveness and lack of autonomy in the job. In addition, occupational stress is caused by lack of resources and equipment; work schedules—such as working late or overtime and organizational climate are considered as contributors to employees stress. Occupational stress often shows high dissatisfaction among the employees, job mobility, burnout, poor work performance and less effective interpersonal relations at work (Manshor, Rodrigue and Chong, 2003). Johnson (2001) similarly argued that interventions like identifying or determining the signs of stress, identifying the possible causes for the signs and developing possible proposed solutions for each signs are required.

Stress is man's adaptive reaction to an outward situation which would lead to physical, mental and behavioral changes. According to Matthews (2001) stress can be experienced from four basic sources – the environment, social stressors, physiological and thoughts. In today's world, the degree of stress increased owing to urbanization, globalization that results into cut-throat competition. Stress is inescapable part of modern life, work place is becoming a volatile stress factory for most employees and it is rightly called as the Age of anxiety. Though stress harms human beings in several ways, not all the stresses are destructive in nature. Appropriate amount of stress can actually trigger your passion for work, tap your latent abilities and even ignite inspirations. Stress is a dynamic condition in which an individual is confronted with an opportunity, demand, or resource related to what the individual desired and for which the outcome is perceived to be both uncertain and important (Schuler, 1980).

The psychological stressors influence the health through emotional, cognitive, behavioural and psychological factors (Levi, 1998). The role ambiguity, role overload, role conflict and strenuous working conditions have positive relations and are the common causes of the stress (Chand and Sethi, 1997). The type of work assigned to an employee is also one of the stress factor and those engaged in work related to them able to cope the stress better than those who are assigned unrelated work (Tread Gold, 1999). Stress in organizations has been defined in terms of misfit between a person's skills and abilities and demands of his/her job and as a misfit in terms of a person's needs not being fulfilled by his job environment. Cooper and Marshall (1976) are of the view that by occupational stress is meant environmental factors or stressors such as work overload, role conflict, role ambiguity, and poor working conditions associated with a particular job.

What is stress?

Stress is the body's nonspecific response to a demand placed on it (Hans Selye)

Stress as a condition or feeling experienced when a person perceives that demands exceed the personal and social resources the individual is able to mobilize. (Richard S. Lazarus)

Nervous tension that results from internal conflicts from a wide range of external situations (D' Souza)

Review of Literature

Hans Seyle first introduced the concept of stress in to the life sciences in 1936. Calpan et. al. (1975) view of an individual, two role systems the role space and role set. The dynamic interrelationship

between the self and various roles an individual occupies and among these roles, the role space and role set is expectations of significant roles. Those individual himself/herself that is the pattern of relationship between role being considered and other role, which creates considerable stress based on the situations. Pareek (1983) pioneered work on the role stress by identifying ten different types of organizational roles stresses. The General Adaptation Syndrome has been widely held has a comprehensive model to explain the stress phenomenon (Hans Selye, 1956).

Several theories were proposed to stress and its effects. Osipow and Spokane (1987) described six work roles that they felt were stressful regardless of an individual's actual vocational choice. Role Overload (RO) —measures the extent to which job demands exceed resources (personal and workplace) and the extent to which the individual is able to accomplish workloads (Osipow, 1998). Role overload can result in an employee —experiencing anger and frustration toward persons believed responsible for the overload in work (Marini, Todd and Slate, 1995). Cercarelli and Ryan (1996) indicated that, fatigue involves a diminished capacity for work and possibly decrements in attention, perceptions, decision making, and skill performance, perhaps must simply put, fatigue may refer to feeling tired, sleepy, or exhausted (NASA, 1996).

Khurram Zafar Awan and Faisal Jamil (2012) reported the differences level of job stress among the permanent employees among the private and public sector comparative banks in their using a comparative analysis study. Jayanthi Nair and Joseph (2013) highlighted the prevalence of various job stresses in policing and their consequences in terms of job relate and affective strains using correlation analysis. A study using Regression Analysis of stress to comparative the employees in public and private sector banks in India reported there were no significant differences between public and private sector banks with respect level of stress experience due to demand of work and job (Samartha, Vidyavathi and Mustiary Begum, 2013)

A study on the effect of stress on performance of employees in Commercial bank of Ceylon concluded that stress is having an impact on bank employee's performance at the same the influence of organizational related stress is higher than the job and individual related stress (Karunanithy and Ponnampalam 2013). A study on causes of stress among the employees and its effect on the employees performance at the workplace in an international agricultural research institute at Hyderabad Metro reported moderate impact on employees performance of the institute (Prasad, Vaidya & Anil Kumar, 2015). A comparative study of job stress of among Government and Private Employees reported that the private employees have more job stress than the Government employees (Rajubhai Rana, 2014).

A multiple regression analysis approach to identify the occupational stress among the Executive Officers in the Governmental and Non-governmental Organizations of Nepal illustrating 12 stressors brought out many finer aspects and the realistic picture of the stresses felt by the employees (Kayastha, Krishna Murthy and Adhikary, 2013).

The significance differences in the factors causing stress like workload, time pressure, work culture and threat of unemployment were reported using a comparative study between HDFC and SBI bank employees (Poonam Negi 2013). A comparative study on organizational role stress among public and private sector employees revealed no significant difference in overall between public and private sector employees in terms of total stress levels, certain individual stressor. This study further reported that the impact of various socio-demographic factors on stress level reveals that educational qualifications and work experience have a significant impact on employees' stress levels (Bushara Bano and Rajiv Kumar Jha 2012).

Lisa Michelle Russell (2014) have made an empirical Investigation to analyse the relationship between stress and burnout in high-risk occupations and how leadership moderates this relationship and the Results indicate police stress exacerbates perceived burnout. Transformational leadership influences this relationship such that high levels of perceived transformational leadership attenuates the negative relationship between stress and burnout, but less so under highly stressful conditions. Findings have strong implications for leaders in high-risk occupations where bureaucracy, departmental policy, and life and death decision-making intersect.

Dwayne Devonish (2014) examined workplace bullying as a potential moderator in the relationship between job demands and physical, mental and behavioural strain and the results revealed that workplace bullying significantly exacerbated the effects of job demands on physical exhaustion, depression, and uncertified absenteeism.

Ramesh Kumar and John Paul (2015) explored the aspects contributing organizational stress and the coping strategies adapted by individuals using a comparative study of job stress in men and women with special reference to middle level managers.

Dodi Irawanto et. al. (2015) concluded that stressors and occupational stress significantly influence the performance of the female employees either simultaneously or partially, and that occupational stress predominantly affects the performance of the female employees prior to the addition of demographic variables. Further this study concluded that demographic variables have a role in moderating the relationship of stressors and occupational stress with the performance of female employees.

OBJECTIVES

Background and cause for the study

The occupational stress is found across all the sectors. The Indian city Hyderabad, with over 15 million population, is a hub for IT industries having >500 IT companies and about 1 million working in IT sector. The city also is the epicenter for the Agricultural Research Sector with dozens of National Agricultural Centers, International Agricultural Research Institute, Agriculture University and its allied colleges, several seed companies, with thousands of employees and workforce working in this center. The city is reported some suicides mainly IT staff for known and unknown reasons, however it was found that mostly due to stress related factors. During August 2015 one of the Vice-President (Strategic affairs) of an IT company committed suicide because of work load and stress. Mr Rajnan Das, CEO and MD of SAP Indian sub-continent died because of massive heart attack. The Cardiologist mentioned “Barring Stress” control he did everything right but used sleep to only less than 5 hours and never controlled his stress, this is the main reason for the massive stroke and this message was widely circulated through Whatsapp (<http://www.studycafe.in/2012/01/why-ranjan-das-ceo-of-sap-india-passed.html>). A wide range of studies on stress related effects were carried out Information Technology, Banking and Industrial sectors. As stress is common for all the employees irrespective of the sectors, we have pursued this study in Agricultural Research sector where employees spend considerable time on their job at least > 10 hours for work and commuting.

Research question

What are the main sources of stress in IT and Agricultural Research Sectors and if there are any differences in stress variables i.e. work overload, role overload etc. among the Agricultural

Research Sector (ARS) and Information Technology Sector (ITS) and how do they influence employees performance in both the sectors

Objectives

The objective of the study is to present the main sources of stress in ARS and ITS and if there are any differences in stress variables among the Agricultural Research Sector and Information Technology Sector and how do they influence employees performance in both the sectors.

- To identify the causes of stress and its effect on performance at their workplace among the AR and IT Sectors.
- To assess how work related stress factors effecting the performance at the workplace and suggest work life balance coping strategies.

Based on the identified problem, research question and the objectives the following hypotheses were formed:

HYPOTHESES

H1: There are some differences in job stress level due to **Work Overload** among the ARS and ITS employees

H2: There are some differences in job stress level due to **Boss/Peer attitude** among ARS and ITS employees

H3: There are some differences in job stress level due to **Role Ambiguity** among ARS and ITS employees

H4: There are some differences in job stress level due to **Role Overload** among ARS and ITS employees

H5: There are some differences in job stress level due to **Co-workers** among ARS and ITS employees

H6: There are some differences in job stress level due to **Career** among ARS and ITS employees

H7: There are some differences in job stress level due to Individual factors among ARS and ITS employees

H8: There are some differences in job stress level due to **Physiological** factors among ARS and ITS employees

H9: There are some differences in job stress level due to **Organizational Climate** among ARS and ITS employees

H10: There are some differences in job stress level due to **Behavioral factors** among ARS and ITS employees

H11: There are some differences in job stress level due to **Psychological** factors among ARS and ITS employees

H12: There are some differences in job stress level due to **Lack of Control** among ARS and ITS employees

H13: There are some differences in job stress level due to **Performance** factors among ARS and ITS employees

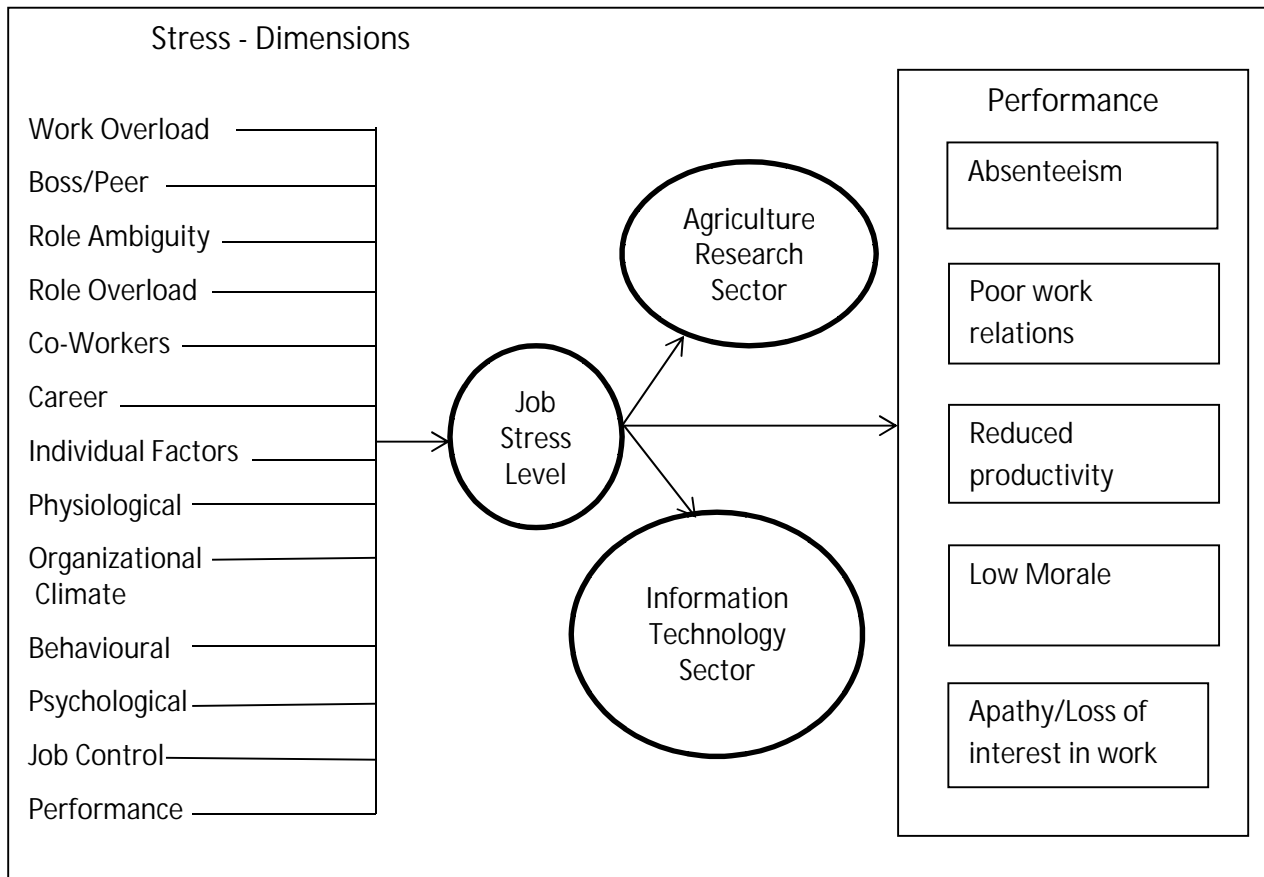
Methodology

Conceptual Framework

The proposed framework was adopted based on the past research by Seley (1993), Ferris, Bergin and Wayne (1988) and Karunanithy and Ponnampalam (2013) and Prasad et al. (2015). The

independent factor stress, in this research is further sub-divided into 13 variables (or dimensions used interchangeably) – Work Overload, Boss/Peer, Role Ambiguity, Role Overload, Co-Workers, Career, Individual factor, Physiological, Organizational climate, Behavioral, Psychological factors, Job control and the dependent Performance. The following frame work is formulated on the objectives to be achieved shows the linkages of the variables in this study (Figure 1).

Figure 1: Conceptual Framework



Data collection

Sample size

The sample population is a subset of the entire population, and inferential statistics is to generalize from the sample to the population (Furlong et. al, 2000). A sample size of three hundred (300), 150 each from AR sector selected from the National Agricultural Research Institute employees, Agricultural Universities, and from One International Agricultural Research institute and 150 from the employees of IT sector companies around the Hyderabad Metro, Telangana, India.

Demography of sample

Response	Frequency	Percent
Agriculture Research Sector		
Male	90	60
Female	60	40
Total	150	100
Information Technology Sector		
Male	80	53
Female	70	47
Total	150	100

Sample description

Age Group	Sample Size	
	AR Sector	IT Sector
20-29	45	39
30-34	31	32
35-39	26	42
>40	48	37

Research instrument

The *research instrument used* for the survey is a structured undisguised questionnaire – a main source for the primary data collection for the both AR and IT sectors. Secondary data was collected from various published books, web sites & records pertaining to the topic. The research instrument – Questionnaire was divided into sections – in the first section, background information/personal details of the respondent were collected. The Section-II of questionnaire was used to find out the stress levels of the employees and impact of the stress on performance. This part contains 50 questions related to 13 dimensions Work Overload, Boss/Peer, Role Ambiguity, Role Overload, Co-Workers, Career, Individual factor, Physiological, Organizational climate, Behavioral, Psychological factors, Job control and the dependent variable Performance. The respondents were asked to choose the most appropriate 'top-of-the-mind' response for each statement. To measure each variable, 50 questions for 13 dimensions were given, but all these questions were mixed systematically to avoid bias.

Reliability test of the questionnaire

The Likert-type scale with items 1-5 was used (where 1= Strongly disagree, 2= Disagree, 3=Neutral, 4=Agree and 5=Strongly agree) in this study. The reliability statistic Cronbach's alpha coefficient value was calculated to test the internal consistency of the instrument, by determining how all items in the instrument related to the total instrument (Gay, Mills, & Airasian, 2006). This instrument was tested on a pilot group of 40 employees each for both the AR and IT sectors. They were asked to fill out the 55-questions, and requested to select the appropriate answer on 5- point Likert Scale. After analyzing their responses from the pilot study with SAS program, the Cronbach's alpha static was found to be 0.70 and 0.80 respectively for AR Sector IT sector respectively suggesting a strong internal consistency. Two months later, the same instrument was used with 300 employees, 150 each for AR and IT sector to collect the responses. Five questions were dropped out from a set of 55 questions because of unsatisfactory Cronbach's alpha coefficient values. The C-alpha values ranged from 0.60 to 0.74 for AR sector and from 0.64 to 0.84 for IT sector, where as the overall C-alpha values are, 0.74 and 0.84 for AR and IT sectors respectively. The increase in C-alpha values is an effect of dropping the questions with low C-alpha values.

The Employees of the both the sectors, were requested to mark on a 5 point Likert type rating scale. To obtain the rating – score, numbers marked were added up and mean value was obtained to categorize the level of stress. Adapting the model of the study of Kamalakumathi Karunanithy and Ambika Ponnampalam (2013) and Prasad et al. (2015) the degree of each variable was measured (Table2).

Table 1: Rating of the score

Total rating range of mean value	Level of influence of the variable on dependent variable
$1 \leq x_1 \leq 2.5$ x_{13}	Low level
$2.5 \leq x_1 \leq 3.5$ x_{13}	Medium Level
$3.5 \leq x_1 \leq 5.0$ x_{13}	High level

x_1 :: Mean of Work Overload Stress to x_{13} Performance
The 13 dimensions are: Work Overload, Boss/Peer, Role Ambiguity, Role Overload, Co-Workers, Career, Individual factor, Physiological, Organizational climate, Behavioral, Psychological factors, Job control (Independent Variables) and Performance (Dependent Variable)

The Statistical Analytical System (SAS) was used to measure the central tendency, measures of variability, and dispersion for the analysis. The Correlation analysis and parametric statistics like t-test and F-tests for comparison and to arrive at the conclusions.

Data Analysis

To test the reliability of each variable Cronbach’s alpha coefficient was calculated and to measure the relationship between stress factors and performance, Karl Pearson’s correlation coefficient was measured. To portray the difference in means is statistically significant the t-test statics were estimated (SAS V9.3).

RESULTS

To assess the independent variable stress effect on the dependent variable Performance based on 12 dimensions – the Work Overload, Boss/Peer, Role Ambiguity, Role Overload, Co-Workers, Career, Individual factor, Physiological, Organizational climate, Behavioral, Psychological factors, Job control and the 13th dimensions, the primary data gathered through questionnaire was analyzed. The performance was measured by absenteeism, poor-work relations, reduced productivity, low morale and apathy/loss of interest in work. The Table 2 presents the calculated Mean, Standard Deviation and Standard Error Values for both The AR and IT sectors of the primary data collected from the respondents (n=300, ARS 150 and ITS 150). From the results of Table 2 it was observed that the objective to find out the source and level of stress is fulfilled and the results indicate that the stress exists among the employees of the both the stressors and effects performance at medium level. The overall SE of 0.07 and 0.08 respectively for AR and IT sectors respectively are relatively small, indicating that the means are relatively close to the true mean of the overall population.

The overall mean value of stress and mean values for all the 13 dimensions indicates a medium level stress and these values and falls under the range $2.5 \leq x_1 \leq 3.5$ effecting the employees performance at both the sectors. The work overload scored higher score for IT sector when compared with AR sector. However, the overall stress is at Medium level for both the sectors, the IT sector scored higher values in most of stress variables (Table 2).

Table 2. Mean, Standard Deviation and Standard Error in mean responders on variable scale

Dimensions	Mean	SD	SE	Level of stress as per decision rule
Work Overload				
Agricultural Research Sector	3.05	0.87	0.08	Medium
Information Technology Sector	3.54	0.79	0.08	High
Boss/Peer				
Agricultural Research Sector	3.20	1.21	0.01	Medium
Information Technology Sector	3.12	0.82	0.08	Medium
Role Ambiguity				
Agricultural Research Sector	3.18	0.80	0.08	Medium
Information Technology Sector	3.20	0.84	0.08	Medium
Role Overload				
Agricultural Research Sector	3.18	0.85	0.08	Medium
Information Technology Sector	3.48	0.84	0.08	Medium
Co-workers				
Agricultural Research Sector	3.06	0.82	0.08	Medium
Information Technology Sector	3.40	0.76	0.08	Medium
Career				
Agricultural Research Sector	2.84	0.70	0.07	Medium
Information Technology Sector	2.95	0.88	0.08	Medium
Individual Factors				
Agricultural Research Sector	2.82	0.93	0.09	Medium
Information Technology Sector	3.05	0.80	0.08	Medium
Physiological factors				
Agricultural Research Sector	2.89	0.82	0.08	Medium
Information Technology Sector	3.40	0.84	0.08	Medium
Organizational Climate				
Agricultural Research Sector	2.20	1.06	0.01	Medium
Information Technology Sector	2.98	0.84	0.08	Medium
Behavioral Factors				
Agricultural Research Sector	2.55	0.70	0.07	Medium
Information Technology Sector	2.95	0.79	0.07	Medium
Psychological factors				
Agricultural Research Sector	2.68	0.85	0.08	Medium
Information Technology Sector	3.02	0.88	0.08	Medium
Job control				
Agricultural Research Sector	3.32	0.89	0.08	Medium
Information Technology Sector	3.23	0.90	0.09	Medium
Performance				
Agricultural Research Sector	2.41	0.75	0.07	Medium effect
Information Technology Sector	1.90	0.83	0.08	High effect
Overall Stress				
Agricultural Research Sector	2.86	0.86	0.07	Medium
Information Technology Sector	3.01	0.83	0.08	Medium

Agricultural Research Sector: The Table 3 provides the information on the relationships of the study variables with each other measured through Pearson's Correlation static to measure the strength of relationship among the variables.

Table 3. Correlations Among the study dimensions – Agricultural Research Sector

Dimension	1	2	3	4	5	6	7	8	9	10	11	12	13	
WOL	1													
BOSS	0.2*	1												
RAmb.	0.27**	0.25*	1											
ROL	0.2*	0.09	0.14	1										
CoW	0.21*	0.17	0.43**	0.23*	1									
Career	-	0.12	0.14	0.01	0.26**	1								
Ind.	0.23*	0	0.17	0.17	0.14	0.04	1							
Physiol	-	0.21		0.46	-	0.34								
.	0.14	**	0.03	**	0.06	**	0.18	1						
Org.	0.33		0.33	0.23		-	0.43							
Cli.	**	0.13	**	*	0.19	0.2*	**	0.2*	1					
Behavi.						-								
	0.35**	0.01	0.38**	0.27**	0.13	0.25*	0.45**	0.37**	0.52**	1				
Psycho		-		0.42		-	0.32	0.45		0.35				
l	0.16	0.15	0.02	**	-0.1	0.08	**	**	0.06	**	1			
JContr	-	-		0.31										
ol	0.17	0.03	0.12	**	0.02	0.09	0.08	0.14	0.05	0.04	0.14	1		
Perfor.	0.26*		0.25*	0.47**			0.21*	0.33**	0.26**	0.29**	0.36**	0.45**	1	
	*	0.16	*	**	0.07	0.01	*	**	**	**	**	**	**	1

1. Work Overload 2. Boss/Peer 3. Role Ambiguity 4. Role Overload 5. Co-Workers 6. Career, 7. Individual factor 8. Physiological 9. Organizational climate 10. Behavioral 11. Psychological factors, 12. Job control (Independent Variables) and 13. Performance (Dependent Variable);

**Correlation is significant at prob < 0.01; *significant at prob < 0.05; Source: Survey data

The work overload issue was significantly positively correlated with role ambiguity ($r=0.27$, $P < 0.01$), organizational climate ($r=0.33$, $P < 0.01$), and behavioural factors ($r=0.35$, $P < 0.01$). The Boss/Peer significantly negatively correlated with the physiological factors ($r=-0.21$, $P < 0.05$) Table III. The Role Ambiguity significantly positively correlated with Co-workers ($r = 0.43$, $p < 0.01$), organizational climate ($r = 0.33$, $p < 0.01$), and physiological factors ($r = 0.38$, $p < 0.01$). Role overload significantly positively correlated with physiological factors, psychological factors, and performance, indicating a positive performance. The Coworkers attitude will have some negative impact on the performance. There is a significantly negative correlation between physiological factors and career ($r= -0.34$, $P < 0.01$), Behavioral factors ($r = -0.25$; $P < 0.01$). The individual factor significantly positively correlated with physiological factors ($r = 0.45$, $p < 0.01$), organizational climate ($r = 0.43$, $p < 0.01$) and psychological factors ($r = 0.33$, $p < 0.01$). One can observe from the Table 3, there is significant positive correlation between physiological factors and

psychological factors and performance. The lack of control on employee's job has some negative relationship with other dimensions, however this is not effecting the outcome of the performance. ($r = 0.45, p < 0.01$). Overall the correlations are moderate and with the available data we cannot conclude that the differences in means are statistically significant.

Information Technology Sector

The work overload issue was significantly positively correlated with role overload ($r=0.57, P < 0.01$), organizational climate ($r=0.39, P < 0.01$), physiological factors ($r= 0.46, P < 0.01$), psychological factors ($0.45, p < 0.01$) and performance ($0.49, P < 0.01$). The Boss/Peer has some native effects on the performance but were not significant (Table 4). The Role Ambiguity significantly positively correlated with Role overload ($r = 0.57, p < 0.01$), physiological factors ($r = 0.35, p < 0.01$), Job control aspect ($r = 0.39, p < 0.01$) and performance ($r = 0.49, P < 0.01$). Role overload significantly positively correlated with physiological factors, psychological factors, and performance, indicating a positive performance. The Coworkers attitude will have some negative impact on the performance in IT sector more or less similar to that of agricultural research sector. The Career is significantly positively correlated with job control ($0.26, p < 0.01$). We can observe from the positive and significant correlation of individual factors with organizational climate, job control, physiological and performance ($0.36, P < 0.01$). We can observe from the results of Table 4, the there is a significant positive correlations among the individual, physiological, psychological, job control, behavioral dimensions and performance. The organizational climate has some negative impact on career but not significant and is negligible. We cannot the draw the conclusions through the correlation values as the relationship between the variables is modest.

Table 4. Correlations Among the study dimensions – Information Technology Sector

Dimensi on	1	2	3	4	5	6	7	8	9	10	11	12	13
WOL	1												
BOSS	0.1	1											
RAmb.	0.21		1										
	*	-0.08		1									
ROL	0.57		0.41										
	**	-0.09	**	1									
CoW				0.31									
	0.18	0.18	0.13	**	1								
Career	0.23		0.23	0.38	0.1								
	*	-0.07	*	**	8	1							
Ind.	0.41	0.28*		0.33	0.0								
	**	*	0.06	**	9	0.17	1						
Physiol.	0.46		0.35	0.48	0.1	0.28	0.27						
	**	0.06	**	**	6	**	**	1					
Org. Cli.					-								
	0.39				0.0	-	0.38	0.23					
	**	0.1	0.11	0.18	5	0.15	**	*	1				
Behavi.	0.44		0.38	0.37			0.47	0.37	0.31				
	**	0.15	**	**	0.1	0.2*	**	**	**	1			
Psychol					-								
	0.45		0.28	0.24	0.0		0.39	0.37	0.36	0.63			
	**	0.13	**	*	1	0.03	**	**	**	**	1		

JControl	0.39			0.24	0.0	0.26	0.38	0.21	0.23	0.37	0.26	
	**	0.08	0.06	*	1	**	**	*	*	**	**	1
Perfor.	0.49			0.44	0.0	0.36	0.41	0.38	0.37	0.35	0.26	0.41
	**	0.07	0.13	**	9	**	**	**	**	**	**	**

1. Work Overload 2. Boss/Peer 3. Role Ambiguity 4. Role Overload 5. Co-Workers 6. Career, 7. Individual factor 8. Physiological 9. Organizational climate 10. Behavioral 11. Psychological factors, 12. Job control (Independent Variables) and 13. Performance (Dependent Variable)

**Correlation is significant at prob < 0.01; *significant at prob < 0.05; Source: Survey data

The parametric tests F and Two-sample T-Test analysis was carried out to see whether the difference in the means among both the sectors is statistically significant and the results are presented in Table 5.

Table 5. Independent Two-Sample T-Test Analysis

Variables	F-Values	Sign.	t-Values	Sign. (2-tailed)	95% CI of the differences	
					Lower	Upper
Work Overload	1.12	0.57	6.92**	0.0001	-2.49	-1.39
Boss/Peer	1.68	0.01	0.53	0.59		
Role Ambiguity	1.12	0.57	-0.42	0.67		
Role Overload	1.05	0.82	3.58**	0.0004	-1.37	-0.39
Co-workers	1.20	0.36	-0.05	0.96		
Career	1.50	0.05	3.37**	0.0009	0.43	1.63
Individual factors	1.44	0.07	2.65**	0.009	-1.2	-0.18
Physiological factors	1.17	0.44	-1.73	0.09		
Organization climate	2.48	0.0001	6.7**	0.0001	-2.14	-1.16
Behavioral factors	1.17	0.45	3.42**	0.0008	-2.1	-0.56
Psychological factors	1.04	0.84	0.18	0.86		
Job Control	1.45	0.06	1.23	0.22		
Performance	1.00	0.98	6.23**	0.0001	-2.78	-1.44

Note: ** p < 0.001 : significant at 95% CI level

STRESS LEVEL DIFFERENCES DUE TO INDEPENDENT VARIABLES

Work Overload: The mean for this variable is more for IT sector (Mean = 3.54) than the Agricultural Research Sector (Mean = 3.05) indicating that the employees of IT sector is having higher stress and Agricultural Research Sector is having medium level stress due to the work overload issues and this may be due to long working hours, time pressures and heavy work. The t-test results confirm for the variable work overload the statistically significant difference in means is among both the sectors (p < 0.0001) which is less than significance level of p-value (0.05) and lower (-2.49) and upper (-1.39) values were between negative numbers at 95% confidence interval of the differences (Table 5). Therefore the results show the statistically significant in difference of means between the IT and ARS sectors employees stress level due to work overload.

Hence the hypothesis **H1** was confirmed that was, “There are some differences in job stress level due to **Work Overload** among the Agricultural Research Sector (ARS) and Information Technology Sector (ITS) employees

Boss/Peer attitude: The mean values for this variable are 3.2 and 3.12 respectively for IT sector and Agricultural Research Sector, indicating medium level stress among both the sectors of employees due to boss/peer attitude. However, the results of the t-test portray there was no statistically significant in difference of means among both the sectors due to Boss/Peer attitude in the both the sectors. The calculated t-value 0.53 is less than the t-tabular value (1.970) at DF (200) and p-value (0.59) also greater than the significance level of p-value (0.05) and lower (-0.2688) and upper (-0.4688) values are between positive and negative numbers at 95% confidence interval of the differences (Table 5). Therefore the results shown non-significant difference of means between the IT and ARS sectors employee stress level due to Boss/peer attitude.

Hence the second hypothesis **H2** was not confirmed that was "There are some differences in job stress level due to **Boss/Peer attitude** among ARS and ITS employees".

Role ambiguity: The mean values for this variable are 3.12 and 3.20 respectively for IT sector and Agricultural Research Sector, indicating that the employees of the both sectors IT sector is having medium level stress due to Role Ambiguity as the employees are unclear or uncertain about their expectations within a certain role, typically their role in the job or workplace as the responsibilities are ill defined or vague. The t-test results show that there was no statistically significant difference in means due to Role Ambiguity among the sectors. The calculated t-value -0.42 is less than the t-tabular value (1.970) at DF (200) and p-value (0.67) also greater than the significance level of p-value (0.05) and lower (-0.0900) and upper (-0.5080) values were between positive and negative numbers at 95% confidence interval of the differences (Table 5). Therefore the results shown non-significant differences of means between the IT and ARS sectors employee stress level due to the Role Ambiguity.

Hence the hypothesis **H3** was not confirmed that was "There are some differences in job stress level due to **Role Ambiguity** among ARS and ITS employees"

Role overload: The mean for this variable is more for IT sector (Mean = 3.48) than the Agricultural Research Sector (Mean = 3.18) indicating that the employees of IT sector are having role overload issues when compared with Agricultural Research Sector. This may be due to in the role in office conflicts with the role in the family (like father/mother). The t-test results show statistically significant difference in means among the sectors due to role overload ($p < 0.0001$) which was less than significance level of p-value (0.05) and lower (-1.365 and upper (-0.3948) values were between negative numbers at 95% confidence interval of the differences (Table 5). Therefore the results show the statistically significant difference in means between the IT and AR sectors employee stress level due to work Role overload.

Hence the hypothesis **H4** was confirmed that was, "There are some differences in job stress level due to **Role Overload** among the Agricultural Research Sector (ARS) and Information Technology Sector (ITS) sectors.

Co-Workers: The mean values for this variable are 3.40 and 3.06 respectively for IT sector and Agricultural Research Sector, indicating that there are some differences exist among Co-Workers in both the sectors. However the t-tests results portray no statistically significant difference of means due to Co-Workers among the sectors. The calculated t-value -0.05 is less than the t-tabular value (1.970) at DF (200) and p-value (0.96, Table 5). Therefore the results show non-significant differences means between the IT and ARS sectors employee stress level due to the Co-workers

Therefore the hypothesis **H5** was not confirmed “There are some differences in job stress level due to **Co-workers** among ARS and ITS employees”.

Career: From the Table, it is evident that there were career issues among the sectors which causing mild occupational stress. The results of t-test show there is statistically significant difference in means among the sectors as the t-calculated (3.37) is higher than the t-tabular value (1.970) at DF (200) and p-value (0.0009) which was less than significance level of p-value (0.05) and lower (0.43) and upper (1.63) values were existed between positive numbers at 95% of confidence interval (Table 5). Therefore the results show significant difference of means due to Co-workers.

Therefore the hypothesis **H6** confirmed that was “There are some differences in job stress level due to **Career** among ARS and ITS employees”.

Individual Factors: In the similar way, from the Table 5 it was implied that the individual factors like income level, financial constrains causing occupational stress. The t-test results show difference in means ae statistically significant among the sectors and p-value (0.0009) which was less than significance level of p-value (0.05) and lower (-1.2) and upper (-0.18) values were existed between negatives numbers at 95% of confidence interval (Table 5). Therefore the results show significant difference in means due to Individual factors causing stress and effecting the performance.

Therefore the hypothesis **H7** confirmed that was ”There are some differences in job stress level due to Individual factors among ARS and ITS employees”.

Physiological factors: The mean for this variable is 3.4 and 2.89 for IT and AR sector respectively, indicating IT sector is having some physiological issues like nervousness, bloating of stomach, severe/chronic muscle pain because of occupational stress when compared to AR sector. However the ($P < 0.09$) show differences in means are not statistically significant among the sectors at 95% of confidence level of interval (Table 5).

Therefore the hypothesis **H8** was not confirmed that was, “There are some differences in job stress level due to **Physiological** factors among ARS and ITS employees”.

Organizational climate: The mean values for this value 2.98 and 2.2 of IT and AR sector respectively indicating that there was negligible differences on the issues like harassment, shift employment, stalking and unacceptable behavior with colleagues. However the results of t-test portray statistically significant difference in means among the sectors. This may be due different type of organizational sectors non-profit (AR) and commercial and profit (IT) sector. The ($P < 0.0001$) which was less than significance level of p-value (0.05) and lower (-2.14) and upper (-1.16) values were fall between negative numbers at 95% confidence interval of difference (Tale 5). Therefore the results show significance difference in means among the AR and IT sector employee stress level due to the organizational climate.

Therefore the hypothesis **H9** was confirmed that was, “There are some differences in job stress level due to **Organizational Climate** among ARS and ITS employees”

Behavioral factors: From the mean values of IT sector (2.98) and AR sector (2.55) the significant differences were observed in the behavioral attitudes like mood disorders, feel irritated, drinking alcohol etc. among the IT and AR sector. The t-results show statistically significance differences in means ($P < 0.0008$) which was less than significance level of p-value (0.05) and lower (-2.1) and upper (-0.56) values were fall between negative numbers at 95% confidence interval of difference

(Table 5). Therefore the results show differences in means are statistically significant among the AR and IT sector employee stress level due to the Behavioral attitudes

Therefore the hypothesis **H10** was confirmed that was “There are some differences in job stress level due to **Behavioral factors** among ARS and ITS employees”.

Psychological factors: The Psychological factors like sleep disorders, anxiety and irritable bowel syndrome (IBS) the occupational stress disorders scored high mean for IT sector (3.02) when compared with AR sector (2.68). The t-test results suggest no statistically significant difference in means ($P < 0.86$) at DF (20) is higher than the significance p value (0.05) at 95% confidence interval of the difference of means, indicating the non-significant differences of means among both the sectors of employees stress level due to psychological factors.

Therefore the hypothesis **H11** was rejected that was “There are some differences in job stress level due to **Psychological** factors among ARS and ITS employees”

Job control: There is not much difference in the means value IT sector (3.23) and Agri sector (3.32). Both the sectors are facing some job control issues and issues like lack of job control that the employee perform, independency issues need to be addressed. The t-test results suggest no statistically significant difference in means ($P < 0.022$) at DF (200) is higher than the significance p value (0.05) at 95% confidence interval of the difference of means, indicating the non-significant differences of means among both the sectors of employees stress level due to job control.

Therefore the hypothesis **H12** was rejected “There are some differences in job stress level due to **Lack of Control** among ARS and ITS employees”

Stress level differences and effect of performance:

The mean value for this dependent variable is 1.9 performance for IT sector and 2.41 for Agri sector indicating there was more effect of occupational stress on performance at workplace in IT sector when compared with AR sector. The difference in means were statistically significant due to overall job performance of employees among both the sectors. The t-test calculated (6.27) was greater than the t-tabular value (1.980) at DF (200) and p-value (0.0001) which was less than significance value ($P < 0.05$) and lower (-2.78) and higher (-1.44) values fall between negative numbers at 95% confidence interval of the differences (Table 5). The results show the significant differences of means among the agricultural and IT sector occupational stress which affects the performance.

Step 1:

H13: There are some differences on performance due to overall occupational stress among ARS and ITS employees

Step 2:

Significance level: $P < 0.05$

Step 3:

Test statistics

$t_{\text{calculated}} = 6.23$ where $t_{\text{table}} = (\text{at df } 200, P < 0.05) 1.970$ and $t_{\text{calculated}} > t_{\text{table}} (6.23 > 1.970)$

Step 4:

Critical region

H13: There are some differences on performance due to overall occupational stress among ARS and ITS employees' was significantly confirmed.

DISCUSSION

The primary data gathered to structured undisguised questionnaire with 50 questions which were sub-divided into 13 dimensions based on their characteristic. These findings include the two extremes of the Likert scale given in the analysis i.e. strongly disagree and strongly agree. The presented results were shown are the mean, standard deviation, t-values, p- value and lower & upper values at 95% CI of the differences of 12 dependent variables and one dependent variable (stress) under study for both the Agricultural Research and Information Technology sectors. The results indicated that there were minimum/less difference between the means in both Agricultural Research and Information Technology sectors. Therefore the causes of stress and its effect on performance at workplace in both the Agricultural Research and IT sector was almost same but IT sector employees' are more prone to occupational job stress due to long working hours, time pressures, job security, role overloads and physiological factors. However, the Agricultural Research Sector where the decision making more centralized in a sense that they are not involving their employees in decision making process as well as communication gap, and delay in adopting new technologies, monsoon failure, climate change is causing occupational stress at medium level apart from other stress factors like lack of job control, boss/peer attitude. Keeping in mind these findings we have come up with the conclusion that our main hypothesis H13 which is "There are some differences on performance due overall occupational stress among ARS and ITS employees was significantly confirmed.

Testing of Hypothesis - Reasons

Some reasons for accepting H1, H4, H6, H7, H9, H10 and H13 are:

- Most of the Agricultural Research Sector employees jobs are more secure than the IT sector jobs because they are research oriented non-profit research centers and are supported by the State and Central Governments. The workload, time pressures has (H1) has minim impact on Agri sector employees compared to IT sector where pink slip is common if the targets are not met so the significance differences of means among the sectors.
- IT sector employees experience more occupational stress due role overload (H4) because of too many roles at one time for an individual or roles are changing and too many new roles develop at once. For a young women, coming into the work force must radically change her lifestyle. The new roles such as wife, mother and worker come to take their place. This transition can be the cause of role overload, so the occupational stress and effect on performance. In IT sector its common that an employee is expected to accomplish more than the person is able to do in a particular time frame (quantitative overload) or wherein a person is taxed beyond their understanding, competencies, or talents (qualitative overload). However in Agricultural Sector in almost all the employees has no or minimal effect on workload and this was minimized through the baby care centers and in campus medical centers. Further the work of this sector is dependent on water resources and climate.
- The Agricultural sector employees has stable career (H6) with time bound promotions more less permanent like job. The employees can claim the ladder through exams or through advertisements where in most the cases the in-sector candidates are preferred. When

compared with the Agriculture Research sector, the IT sector career is more dependent on the employee's self performance, creating more revenues to the company and moving one company to other to climb the ladder. Therefore significance difference of means exists among both the sector in respect to the career.

- The Individual Factors (H7) like income level, financial constraints and one's ability to relax has more significant difference of means among both the sectors. Agricultural Research Sector employees have stable income with dearness allowances to cover the inflation, can easy get loans because of nature of employment, whereas IT sector employees income is not stable in most of the cases which is also a stress factor effecting the performance.
- The organization climate (H9) also effects the employee performance. In almost all the Agricultural Research the organizational climate will be pleasant at workplace in comparison with IT sector where stalking and unacceptable behavior is common in some places causing occupational stress and affects the performance. It was observed where the environment pleasant the employees behavioral (H10) also stable and control but IT sector there is significant difference means was observed causing some stress to the employees. The sleep disorder is common in IT sector employees of because of the shift employment in some cases.
- The results portray that occupational stress considering the 12 dimensions affecting the performance (H13) more in IT sector when compared with Agricultural Sector, because of the role overload, work overload, job insecurity, lack of job control, time pressures and organizational climate.

CONCLUSIONS

In the age of dynamic and competitive world, the mankind is exposed all kind of stresses as the stress is found in all the sectors. This research study was aimed at to study the impact of occupational stress on the employee performance at the workplace of agricultural and Information Technology sectors. The study suggest that IT sector employee are more affected due to workload, role overload, career, organizational climate, lack of job control, and in particular job insecurity, whereas agricultural sector employees are affected because of nature – climatic change, depleting water resources and other factors like genetic diversity which out of scope of this paper. Overall the stress in both agricultural research sector and IT sector is at medium level, but when compared IT sector is having more stress than the agricultural research sector. All most all the variables mean value fall within the range of $2.5 \leq x_1 \leq 3.5$ which shows medium level stress exist in the institute. These issues need to be addressed by the management of the institute by Ergonomics to understand the interactions among humans and other elements of a system, and the profession that applies theory, principles, data and methods to design in order to optimize human well-being and overall system performance. We have also observed women will have more stress because of their dual roles working and taking the responsibility of the family at home – role conflict. Proper strategies need to be developed considering working on flexible hours, interpersonal relationship and supervision and participation of the employees in the stress management may be helpful to cope the stressors.

RECOMMENDATIONS

Stress issue has become contemporary, being an occupational hazard and needs to be addressed without delay. There is no “one size fits all” solution to managing stress, because it is the individual who has the still have control over lifestyle, thoughts, emotions, and the way one deal with the problems. One should try to modify changing the stressful situation, and find some time to move away for rest and relaxation. The first step is to recognize the true sources of stress.

Individual management: Some of the unhealthy methods and which reduce stress temporarily are: smoking, drinking, using pills for relax, drinking too much, sleeping too much and out bursts.

Organise work plan and avoid multi-tasking. Human brain is not designed for multitasking. Organise your daily tasks in the order of priority and then go after them one by one. By following this one simple habit, you will accomplish more in a day than you accomplish in two days of multitasking. Do not begin doing the next thing without completing the most important thing.

Give up complaining and blaming: Complaining surely creates more stress this means every time you complain about your work and blame your boss for your situation, you are literally throwing away your happiness. There are certain things you can change and there are certain things you must accept. Your proven work will climb you the ladder. Only think about the things that you can control.

Accept constructive criticism which will be helpful to improve your performance. Spend time with those who talk about ideas Find out the happiest and most intelligent people at your workplace and try meeting them on a regular basis. You will notice a huge difference in your productivity and workplace happiness. Learn to say 'no' to people who do not add value to your life.

Give up the distractions: Learn to conserve your emotional energy. Never get emotional about politicians, sportsmen or celebrities. Sports is meant to be played, not watched. It is difficult to get it the first time but it is much better to play cricket for 1 hour than to watch it for 6.

Healthy methods: Walking, will increase the heart rate and relive you from the stress. Activities that are continuous and rhythmic—and require moving both your arms and your legs—are especially effective at relieving stress (Walking, running, swimming, and aerobic classes are good choices. One should try to make a conscious effort to focus on body and the physical (and sometimes emotional) sensations experienced while moving. Adding this mindfulness element the exercise routine will help you break out of the cycle of negative thoughts that often accompanies overwhelming stress.

In addition to regular exercise, there are other healthy lifestyle choices that can increase your resistance to stress.

- Eat a healthy diet. Well-nourished bodies are better prepared to cope with stress, so be mindful of what you eat. Start your day right with breakfast, and keep your energy up and your mind clear with balanced, nutritious meals throughout the day.
- Reduce caffeine and sugar. The temporary "highs" caffeine and sugar provide often end in with a crash in mood and energy. By reducing the amount of coffee, soft drinks, chocolate, and sugar snacks in your diet, you'll feel more relaxed and you'll sleep better.
- Avoid alcohol, cigarettes, and drugs. Get enough sleep. Adequate sleep fuels your mind, as well as your body. Feeling tired will increase your stress because it may cause you to think irrationally.

Organizational level: The management of the organization should also take the responsibility of employees' stress conducting stress management and coping programs at the institute level. The organization should start employee motivation programmes, yoga and meditation. If employees are given control the job they perform, there will be job satisfaction and high quality of work, as the

employee himself takes the decisions and organizes his work at optimal level. Better communicating strategies, positive supervision one who provides adequate guidance and encourages the staff can mitigate the stress. Having baby care centers within the office premises will be a huge relief to the women employees so the reduced stress. Flexible working hours, work redesign, appropriate training on the new technologies, decentralized decision making, regular health checkups will definitely help to overcome the problem of the stress. The job related issues – job insecurity need to be addressed amicably. The commonsense remedies like more sleep and eating better, find more suitable job are some suggestions. As the stress is individual oriented one himself/herself should develop the coping strategies adjust his/her life-style and food habits.

The following are few suggestions to reduce employee stress at organizational level

- Create an effective and supportive relationship between employees and peers
- Find time every day for detachment and relaxation with family
- Take a walk around the office to keep body refreshed and alter
- Reduce personal conflict on the job
- Give more control over the job to employees
- Allow participation of the employees across the activities
- Implement flexible working hours

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