



A STUDY ON OVERALL SATISFACTION ON ATTITUDES OF EMPLOYEES TOWARDS STRESS IN BHEL, TIRUCHIRAPPALLI

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Abstract

Stress is an inevitable part of the work environment in the 21st century. Learning to manage it positively at all levels is the key to high performance. Behavior response to physical and psychological stress can affect organizations negatively. There is a chance for executives under stress to grow unhappy with their pay, work, and co-workers and have less organizational commitment and exhibit greater degree of absenteeism, job turnover and production inefficiencies. The focus of this research paper is only on employees who work at BHEL, Tiruchirappalli. The study has an aim to understand the causes and management of stress of employees concerning a specific company therefore it will not consider the whole manufacturing industries in a national level or international level. So the scope of our study is within that company and may not be applicable to all types of organizations or workplaces.

Relevant dimensions are taken to fit the research topic and objectives. Related issues concerning stress are discussed through various dimensions of stress based on the internal and external factors of stress in the organization. The research was conducted among all the employees who belong to several departments at BHEL Tiruchirappalli. The respondents who participated in this research do not represent the whole population of the industry. Further there is not much research done regarding work place stress among the employee at BHEL, Tiruchirappalli.

Keywords: Stress, Job Satisfaction, Work Life Balance, Attitudes .

1.1 Introduction

The increasing demands and pressures of work-life, leads to conflicts between work and personal roles. Proper work life balance can be achieved when an individual is able to fulfill all his/her needs in respect of family, work and society. In every workplace, the metrics of quality and performance are usually developed according to the potential of each individual or team, which are ultimately translated as their association, dedication or passion for the work or the incorporating workplace. Understandably, any imbalance between organizational and personal commitments and the inefficient management of life priorities can lead to serious consequences such as diminished job satisfaction, poor productivity and performance, lower organizational commitment, inferior career ambitions & success, increased absenteeism & intention to leave, as well as employee burnout, job stress, poorer physiological and psychological health, and diminished performance in personal life & family.

For many individuals, women and men alike, work life balance has become the proverbial “brass ring” for which they strive in their efforts to balance family, work, and personal interests. Nevertheless, work life balance is not simply essential for the health and well-being of individuals, but is also cost-efficient and stability enhancing for institutions and work-environments (Perrons, 2003). Hammig and Bauer (2009) investigated and discovered that when work-life imbalance and mental health issues developed in males as well as females, they tend to develop further issues such as negative emotions, depression, low energy, pessimism, fatigue and sleep disorders. August and Waltman (2004) identified that the job satisfaction of female employees is related to the environmental condition, departmental climate, and demographics of the organization in which they used to work.

1.2 Workplace Stress

Work place stress is defined in terms of its psychological and physiological effects on a person or thing. Work place stress occurs, when there is a discrepancy between the demands of the environment or workplace and an individual’s ability to carry out and complete these demands. Often a stressor can lead the body to have a physiological effect, which, in turn, will result in strain on a person physically as well as mentally. One of the main causes of Work place stress is work overload. Increased amount of work is given to the current employees to finish it in the same time span that they would be asked to finish their regular or standard workload, leads to work place stress. Prevention, elimination and reduction of the problem of work-related stress can include a variety of activities. De Frank and Cooper (1987) suggest that interventions to reduce stress in the workplace may target the individual, the organization or the interface between the individual and the organization. Individual actions seek to increase the physical and psychological capacity of the individual to enable him to adapt to the stressful situation. Stress is changing to a common phenomenon among the employers and employees. (Michie, 2002, p.67) Increasingly the stress level is changing rapidly among the employees due to a set of various reasons. Employees experience and feel stressed continuously and therefore the reactions of stress at the workplace are not a separate aspect. (Fairbrother, &



Warn, 2003 p. 8) Stress at work is also increasing due to external factors such as technological advancement and changes in the economy of a country. Stress is also bound to occur in multinational companies where operation is global and employees have different cultural backgrounds. Besides stress that could be caused by family or personal problems, stress at work has become even a greater problem because of job restructure, globalization and more demand on the task at hand. This might lead to higher job insecurity which would make employees feel stressed and distressed. (Tennant, 2001, p. 697) Therefore the increased stress among employees motivated us to become interested, sensitive and curious regarding the importance of the subject. When it comes to organizational interventions, they are about to reduce the stress impact by changing the organizational structure (IRSST, 2008). Finally, “actions which are taken on a more local level, i.e. within a team or a department, tend to put the emphasis on the interface between the individual and the organization.

1.3 Review of Literature

Amir Shani and Abraham Pizam (2011) in their article “Work-Related Depression among Hotel Employees” conducted a study on the depression of work among hotel employees in Central Florida. They have confirmed the incidence of depression among workers in the hospitality industry by evaluating the relationship between the occupational stress and work characteristics.

Viljoen, J.P., and Rothmann, S. aimed at studying and investigating the relationship between “occupational stress, ill health and organizational commitment” (2009). The results were that organizational stressors contributed significantly to ill health and low organizational commitment. Stress about job security contributed to both physical and psychological ill health. Low individual commitment to the organization was predicted by five stressors, namely work-life balance, overload, control, job aspects and pay.

Schmidt Denise Rodrigues Costa, Dantas, Rosana Aparecida Spadoti Marziale, Maria Helena Palucci and Laus, Ana Maria (2011) pointed out in their work title on “Occupational stress among nursing staff in surgical settings” This study aimed at evaluating the presence of occupational stress among nursing professionals working in surgical settings and investigating the relations between occupational stress and work characteristics.

Li-fang Zhang conducted a study titled “Occupational stress and teaching approaches among Chinese academics” (2009) He suggested that controlling the self-rating abilities of the participants, the conducive conceptual change in teaching approach and their role insufficiency predicated that the conceptual change in teaching strategy is negative.

1.5 Statement of The Problem

The present globalized economy and the entry of multinationals have put the industry executives and workers to enormous pressure due to acute competitions. This competition reflects on human resource and quality output. Competition is a continuous process and it sustains rationally in all sectors of markets and industries. Under these circumstances, the employees need extensive research as they are instrumental for maintaining a healthy organization. Delighted employees are the need of today’s industries whose performance decides strategies, to create conducive climate and environment which would enable them to ease out stress and strain for their better performance. Stress affects different people in different ways. While some take stress home with them everyone tries to make some personal changes to deal with it. The organizations have now realized the importance of stress management. As already mentioned, stress is due to work environment and also family circumstance.

However, the organizations focus on the reduction or management of the job-related stressors alone. But the impact of personal stressors like family and social commitments which have a bearing on the emotional stability and physical ability of the employees has not been taken care of by these organizations. Although a lot of research has been conducted on ‘Stress’ over the last hundred years, some theories about it are now settled and accepted, while others are still being researched and debated. Researchers still continue to trace the causes and consequences of stress and strategies for tactfully handling the stress, have not yet gained finality. Since then a great deal of further research has been conducted on this subject and new ideas have come to light. An attempt is made in the present study to fill the gaps in the research on stress and add new dimensions to the selected area of the subject.

1.9 Objectives of The Study

Following are the objectives of the study:

1. To analyze the implications of stress over job satisfaction in BHEL, Tiruchirappalli
2. To provide suitable suggestions to overcome the stress.

1.11 Limitations of the Study

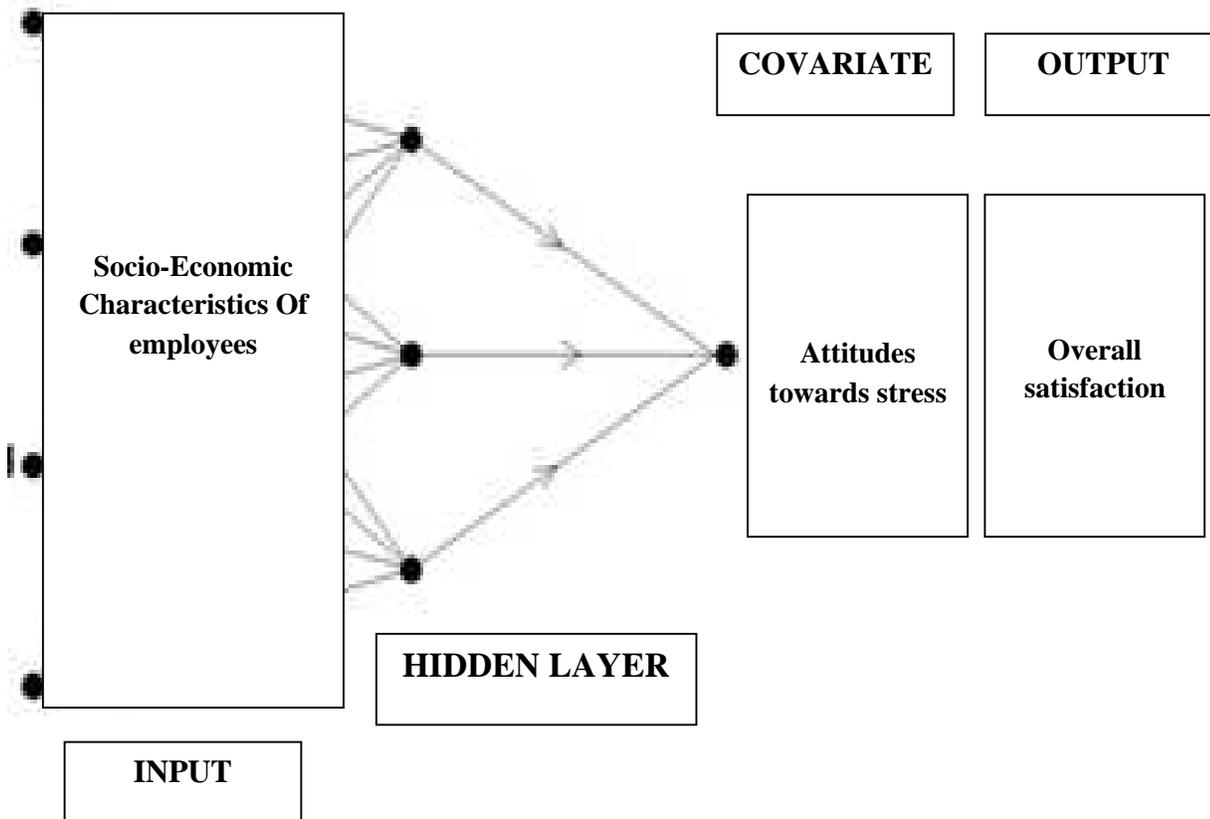
Following are the limitations of the study:

1. The present study is restricted only to the employees of BHEL, Tiruchirappalli, for analysis. So we can't generalize the result to other firms under this industry.
2. Findings of the study may not be applicable to the future due to organizational change and technology developed work environment.

1.12 Analysis and Findings

The Neural Network architecture, used in this study, is a multilayer feed forward network using SPSS 20. The architecture which provides the best fit for the data is the network with three hidden layers and an output layer. The learning and momentum parameters are 0.6 and 0.9 respectively and error convergence falls below 0.01 Percent. Tan sigmoid is the activation function chosen for the hidden layers, and the pure linear function is used to get the output layer which is the real time values. The architecture which provides the best fit for the data is the network with eight input layers, nineteen covariate variables and one hidden layers and one output layer, as shown in figure 4.1.

Figure – 1
Basic Neuron Model for overall satisfaction on attitudes of employees towards stress in BHEL, Tiruchirappalli



The neural network model stems from the studies on the working of human brain systems, and serves as an associative memory between the input and output patterns. These models contain many densely interconnected elements called Neurons or Nodes. The neuron has a set of "n" inputs "x_j", where the subscript "j" takes a value from 1 to "n" and indicates the source of the input signal.

Each input "x_j" is weighted before reaching the main body of the processing elements, by the connection strength or weight factor "w_j". (Multiplied by "w_j"). In addition, it has a bias term "w₀", a threshold value that has to be reached or exceeded for the neuron to produce a signal, a non-linearity function F that acts on the produced signal (or activation) R, and an output O. The non-linearity function used in this network is the sigmoid. The sigmoid is very popular because it is monotonic, is

bounded, and has a derivative: $f'(s) = kf(s) [1-f(s)]$. The model used in this work is the Feed Forward Multilayer perception, using the Back Propagation Algorithm. Where (4-3-1)

- 8 - Input layers
- 19 - Covariates layers
- 1 - Hidden layers
- 1 - Output layer

All inputs are analyzed in the experimental validation part, with appropriate output results by the illustration of graphs so that the influences of the parameters of tensile strength are taken into consideration. The network information presented in the table. The validation of the estimated NN and Experimental value illustrations is shown in Figure.

Table 4.13, Model Summary for Neural Network Model for overall satisfaction on attitudes of employees towards stress in BHEL, Tiruchirappalli

Training	Sum of Squares Error	70.301
	Relative Error	.773
	Stopping Rule Used	1 consecutive step(s) with no decrease in error ^a
	Training Time	0:00:00.091
Testing	Sum of Squares Error	22.702
	Relative Error	.644
Dependent Variable: OVERALL SATISFACTION		
a. Error computations are based on the testing sample.		

Source: Output generated from SPSS 20

Table – 4.14, Neural Network Model for overall satisfaction on attitudes of employees towards stress in BHEL, Tiruchirappalli

Input Layer	Factors	1	Age
		2	Marital Status
		3	Number of Children
		4	Educational qualification
		5	Monthly income
		6	Location of your residence
		7	Type of the family status
		8	Total Number of the Family members
	Covariates	1	Forced to overtime
		2	Documentation work is more
		3	Leisure hours is very few
		4	No time to preparation for subject in college
		5	physically straining
	6	mentally straining	
	7	Performance appraisal system is stressful	
	8	Job is frustrating	
	9	Personal life is stressful because of my job	
	10	More relaxed at workplace than at home	
	11	This job have no job security	
	12	Family matters reduce the time can devote to your job	
	13	Family worries or problems distract from your work	

		14	Family activities stop the person in getting the amount of sleep to need to do your job well
		15	Family obligations reduce the time the person need to relax
		16	Job reduces the amount of time you can spend with the family
		17	Problems at work make irritable at home also
		18	Work involves a lot of time away from home
		19	Job takes up so much energy
Hidden Layer(s)		Number of Units ^a	49
		Rescaling Method for Covariates	Standardized
		Activation Function	Hyperbolic tangent
Output Layer	Dependent Variables	1	OVERALL SATISFACTION
	Number of Units		1
	Rescaling Method for Scale Dependents		Standardized
	Activation Function		Identity
	Error Function		Sum of Squares
a. Excluding the bias unit			

Source: Output generated form SPSS 20.

The factors of attitudes of employees towards stress in BHEL, Tiruchirappalli model parameters are modeled by using the Neural Network Method. The parameters are optimized so as to determine the set of parameters, which will influence the increase in the overall satisfaction on attitudes of employees towards stress in BHEL, Tiruchirappalli Neural Networks Architecture and network information.

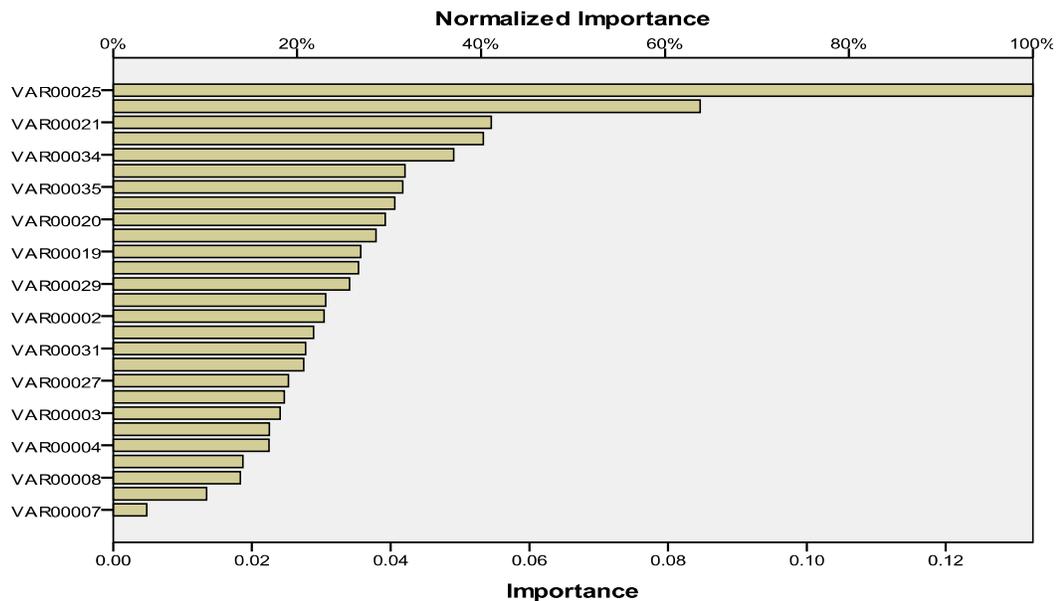
Table – 4.15,Independent Variable importance of Neural Network Model for overall satisfaction on attitudes of employees towards stress in BHEL, Tiruchirappalli

Independent Variable for Neural Network Model	Importance	Normalized Importance
Age	.027	20.7%
Marital Status	.030	22.9%
Number of Children	.024	18.1%
Educational qualification	.022	17.0%
Monthly income	.029	21.8%
Location of your residence	.013	10.2%
Type of the family status	.005	3.7%
Total Number of the Family members	.018	13.8%
Forced to overtime	.023	17.0%
Documentation work is more	.041	30.6%
Leisure hours is very few	.036	26.9%

No time to preparation for subject in college	.039	29.6%
physically straining	.054	41.1%
mentally straining	.031	23.1%
Performance appraisal system is stressful	.025	18.6%
Job is frustrating	.042	31.7%
Personal life is stressful because of my job	.133	100.0%
More relaxed at workplace than at home	.053	40.2%
This job have no job security	.025	19.0%
Family matters reduce the time can devote to your job	.035	26.7%
Family worries or problems distract from your work	.034	25.7%
Family activities stop the person in getting the amount of sleep to need to do your job well	.019	14.1%
Family obligations reduce the time the person need to relax	.028	20.9%
Job reduces the amount of time you can spend with the family	.085	63.8%
Problems at work make irritable at home also	.038	28.6%
Work involves a lot of time away from home	.049	37.0%
Job takes up so much energy	.042	31.5%

Source: Output generated from SPSS 20

Figure – 4.3, Normalized importance for overall satisfaction on attitudes of employees towards stress in BHEL,



Tiruchirappalli

The table and diagram shows the attitudes towards stress of employees of BHEL, Tiruchirappalli in respect of “Personal life is stressful because of my job” is contribute more towards the output of overall satisfaction of employees. The neural network method analysis has determined the statement ‘Personal life is stressful because of my job’ as the most contributing factor. Since most of them are in a nuclear family and they are bounded with commitments. Therefore it becomes more influencing to them to balance their work and personal life circumstances.

Suggestions

- There is extensive evidence showing that poor physical working conditions contribute not only to physical hazards, but stress levels as well. Some possible strategies may include improving indoor air quality; reducing levels of



Workplace Stress physical hazards such as noise, toxins, chemicals, etc.; and job redesign to reduce incidence of repetitive strain injuries (i.e., reducing repetitive work, awkward work postures and/or heavy lifting.).

- Healthy use of technology avoids toiling of work and exceeding the time schedules for completion of the job. Strategies may include healthy use of computers; and staff involvement in choosing new equipment. People are at their most productive and healthy nature if they can work at a manageable level. Possible strategies may include reduced use of overtime and caseload restrictions to reduce work place stress; A committee can be formed as a brake mechanism with an administrative group included to reduce the amount of change the organization initiates; and formation of “What we don’t need to do?” committee to identify the low priority or unnecessary tasks hindering the job related tasks to be performed by the employees.
- The organization should ensure job security and career development. This intends to eliminate jobs that are usually incompatible with efforts to improve the quality of the working environment. More positive approaches attempt to use the skills of existing employees in a more effective manner. Possible workplace strategies may include extension of career ladders; and expansion of responsibilities and tasks.
- Flexible work schedules have the potential of improving employee satisfaction and reducing stress. Possible workplace strategies may include reduced use of forced overtime; rotating shifts in a forward (day to night) schedule; and use of flextime and other alternative work week schedules.

Conclusion

Stress is not something to be proscribed as being just part of an individual’s job, or the price paid by an individual for being successful in his career. Stress due to unhealthy work environments is still seen as a sign of weakness in many organizations, and is kept quiet so as to avoid negative repercussions. The opportunity exists for employers and employees to get together and make way for changes that will reduce stress related impacts on productivity. It is the intention of this report to educate on the damaging effects of workplace stress, and increase awareness of the widespread nature of this problem. It is hoped that this knowledge will motivate organizations to explore the stressors that are present in their own work environments, and to take steps to reduce and/or prevent stress in the workplace, thereby working to maintain the wellbeing of employees, their performance and organizational productivity.

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